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JOURNAL OF SPEECH AND HEARING DISORDERS

VOLUME 23 FEBRUARY, 1958 NUMBER 1

A Journal of the
AMERICAN SPEECH AND HEARING ASSOCIATION

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NOTICE TO AUTHORS

Before submitting manuscripts for publication, authors should consult Information for Contributors to the *Journal of Speech and Hearing Disorders*, JSHD, 23, 1958. Prospective authors are invited to write the Editor for copies of this Note, and for its supplement, Examples of Manuscript Form.

The *Journal of Speech and Hearing Disorders* is published by the American Speech and Hearing Association in February, May, August, and November of each year. Volumes 1-12 appeared under the title The *Journal of Speech Disorders*.

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Subscription: $5.00 per year in U.S.A.; $5.50 per year outside U.S.A.; $1.35 per single copy. Entered as second-class matter at the Post Office in Danville, Illinois, under Act of Congress of March 3, 1879. Printed by The Interstate Printers and Publishers, Inc., 19-27 North Jackson Street, Danville, Illinois.

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The American Speech and Hearing Association

THIRTY-FOURTH ANNUAL CONVENTION

November 17-19, 1958, Hotel New Yorker,
New York City

SECOND FORMAL CALL FOR PAPERS

An invitation is issued to all members of the Association to submit abstracts of papers which they wish to have considered for presentation on the program at the Annual Convention in 1958. Non-members are also invited to submit abstracts. General program ideas and suggestions are welcomed by the Program Committee. All communications, including abstracts, should be sent to Leo G. Doerfler, Department of Audiology, Eye and Ear Hospital, Pittsburgh 13, Pennsylvania.

The deadline for submission of abstracts is *April 15*, but members are urged to forward their proposals as far in advance of that date as possible. General program suggestions should be made immediately if they are to be of help to the Committee.

Abstracts must include (1) the full title of the proposed paper, (2) the name of the contributor and his professional affiliation, (3) the time required for the presentation, (4) details of any equipment needed for the presentation, and (5) a concise summary of the content of the paper. Excessively brief, incomplete, or otherwise inadequate abstracts cannot be considered; in general, abstracts should be one to two pages in length.

Submission of an abstract implies that a contributor accepts the following responsibilities: (1) He must be present in person at the scheduled time. If unforseen circumstances prevent his appearance, he must make suitable arrangements with his chairman as far in advance as possible. (2) He must keep strictly within the time limits assigned to him by his chairman.

Perusal of previous programs will inform prospective contributors of the wide range of possible topics suitable for consideration. They need not be confined to experimental studies, but may include theoretical and practical discussions of any phase of the speech and hearing processes or any aspect of human communication. It is hoped that a large number of abstracts and program ideas will be submitted; careful consideration will be given to all of them.

Individuals responsible for such functions as receptions, alumni luncheons, open houses, *etc.*, are invited to submit the essential information to the Program Chairman for inclusion in the Convention Program.

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The Personal Need For Professional Unity

Raymond Carhart

The American Speech and Hearing Association is an astonishing organization. It exists as the professional and intellectual rallying point for almost five thousand teachers, clinicians, and researchers whose diverse interests and dissimilar working conditions make their affiliation in one organization paradoxical. These people have all found the Association satisfying, albeit the majority of them have undoubtedly felt restive at times in the face of the problems which the Association continues to face.

The scope of these problems has been admirably summarized in the last three Presidential Addresses delivered to the Association. Dr. Powers, in 1954, analyzed the dichotomy of interests and of needs which separates the clinician from the research worker. The next year Dr. Bloomer stressed the necessity of clarifying the scope of training programs in the field and of outlining the proper boundaries of professional activity. Dr. Carrell, in 1956, reminded ASHA how imperfectly the endeavors of its members are understood either by the general public or by their colleagues in other professional fields. One may paraphrase the situation, possibly a bit too dramatically, by stating that ASHA is split in basic interests and no one really knows its extent. The American Speech and Hearing Association has become a great institution, but it is also a vaguely structured one.

This situation is understandable. One can hardly expect the Association to achieve more precise definition than one finds in the fields which it represents. One must remember the rapidity with which the speech and hearing professions have been evolving for the past thirty years. Today, as one contemplates speech pathology, the basic sciences of communication and language, and audiology, one faces areas which defy full description because of the diverse interests that their uncertain boundaries encompass.

Understandable as these circumstances are, they have one implication which must be kept foremost in everyone's thinking if the American Speech and Hearing Association is to preserve and to enhance its strength. Specifically, professional confusions within ASHA encourage a basic sociological trend which could undermine its unity. One must recognize this trend. One must evaluate realistically the problems it imposes upon the Association. Lastly, one must welcome whatever steps are necessary to preserve the Association in a form that promises full mutual benefits to

Raymond Carhart (Ph.D., Northwestern University, 1936) is Director of the Hearing Clinic and Professor of Audiology, Northwestern University. This article is an adaptation of the Presidential Address delivered at the ASHA convention in Cincinnati on November 20, 1957.

all its members.

The sociological trend which threatens ASHA results from a basic phenomenon of modern culture: namely, the ever-increasing specialization in human labors. Sometimes it seems as though only the housewife is left behind to serve as a 'Jill-of-all trades.' Even she, if she is to believe the commercials she hears and the advertisements she sees, has most of her work done for her by electrical gadgets and packagers of quick-cook foods. Be that as it may, contemporary culture is one from which self-sufficiency has disappeared as specialization has evolved. Modern man, for all his enhanced insight into the physical and social world, cannot capture the primitive self-assurance which was the psychological strength of the nomadic hunter and the early agrarian. The immediate satisfactions to be had from physical conflict and from the personal conquest of Nature are gone. In their place there is now a sense of dependency and a fear of inadequacy as the individual contemplates his insignificance in a complex society, with its multitudinous economic and political tensions. Technology has brought many benefits, but its price has been exacted from the egos of individual men.

It follows, since human beings have an imperative need for emotional security, that cultural patterns must develop which give the individual a sense of sanctuary. The foundations for these patterns, as J. Z. Young points out in his *Doubt and Certainty in Science*, are to be found in man's gregariousness. Men assemble for ceremonies and for the spectacle of physical contests partly because such gathering re-affirms each individual's sense of integrity within his environment. In contemporary culture this fact produces a seeming paradox. Each specialist's sense of being a needed and integral part of the social organism he inhabits receives tremendous support within himself when he bands together with others who share his particular segment of human endeavor. By uniting with others who also have his goals and aspirations, he gains confidence that his type of work is appreciated and that he will be sustained. Moreover, if he and his companions fail to achieve a communion which brings them this feeling, they will undergo destructive restiveness until an organization is built which they do find satisfying.

Oliver La Farge illustrated the basic problem involved when he observed that scientists are lonely men even in the presence of other scientists. Each scientist, La Farge emphasized, must seek out those few individuals who share the interests and questionings which are uniquely his own. When in company with these few persons he experiences an intellectual blossoming which has no counterpart in his other activities, no matter how competent his companions in these other activities.

It is the loneliness which men feel as they live each day amid people whose work-a-day interests are unlike their own that causes the myriad of organizations characterizing our culture. One may scoff at some of the organizations he sees on the social scene, but these organizations will survive as long as they supply emotional havens to their members.

A corollary to this last observation is the fact that an organization tends to sub-divide as the field it serves becomes more diversified, as it adds specializations within specializations. The history of the American Speech and Hearing Association supplies an

excellent example of this trend. The older members of ASHA will remember the progression of events. The early years were spent essentially as a minority group within the household of the National Association of Teachers of Speech, which has since become the Speech Association of America. Almost all ASHA members had received their training in departments of Speech and the majority felt their prime affiliation to this field as it was traditionally defined in the academic world. They were, however, beginning to find their interests deviating from those of their colleagues in public address and in the speech arts. They were beginning to evolve the traditions, the substantive subject matter, and the distinctive professional activities of an independent specialty. This fact was not appreciated by most of the leaders in NATS. Only the minority conceived that the area of communicative disorders was more than a subordinate specialty within the conventional discipline of Speech. To be sure, ASHA was given encouragement to organize its own convention programs and to produce its own journal. The point is that many people in NATS believed that ASHA's problems of growth could be adequately solved by integrating its evolving fields into the contemporary boundaries of academic Speech.

History has not supported this opinion. Consider, for example, the present scope of ASHA as this scope is revealed by the program of the 1957 convention in Cincinnati. This program was composed of sixty-one sessions, exclusive of business meetings, luncheons, and formal gatherings of committees. A broad tabulation, which includes overlap between categories where such overlap is logical, reveals a provocative distribution in the subject matters of these sixty-one sessions. Sixteen of them were concerned with stuttering, defective articulation, cerebral palsy, voice and cleft palate. An additional six concentrated attention on speech and hearing therapy in the public schools. Five more dealt with the immature, the retarded and the brain-damaged child. All told, moreover, eight sessions were directed toward the evaluation and management of neurological disorders. Turning to the subject of research and basic science, one finds that eleven sessions were allocated to experimental phonetics, voice science, psychoacoustics, and experimental problems in clinical audiology. Furthermore, a total of eleven sessions were given over to the field of audiology. Here the topics included not only research but also clinical and educational problems and procedures. Finally, seven sessions were concerned with the general problems of directing and administering programs in speech and hearing. These sessions gave attention to such diverse topics as state and urban programs in speech correction, the summer clinic, the community speech and hearing center, the private school, preparation of therapists, and government support of activities in speech and hearing.

Clearly, as one contemplates the foregoing summary one is reminded of the tremendous range in interest and in background which the American Speech and Hearing Association serves. Its members can be proud that their activities and their purposes have drawn so many different types of persons into a single organization. Moreover, they can be sure that this situation exists because the Association is currently the intellectual rallying point and the emotional haven for every individual who cherishes its

membership.

Obviously, there is a grim side to the thesis being examined. ASHA has attracted to membership *only* those individuals who find their affiliation with the Association to be a satisfying experience. Moreover, it will hold as future members *only* those persons who continue to be satisfied. Thus, if the members of the Association wish it to grow stronger, if they wish to acquire the many benefits which expansion of the present union can bring to each one of them, they must hold one goal foremost: namely, *the Association must always order its structure, perform its services, and conduct its activities so that it is a true professional sanctuary for every specialty affiliated within the Association.*

Most members will agree that this goal is paramount. However, merely to say that the Association cannot afford to let any other considerations becloud this goal is insufficient. All must also, both as individuals and in the aggregate, seek continuously those positive actions which are necessary to anticipate the cultural evolutions and changes that would otherwise prove disruptive.

With this thought in mind, consider briefly the positive approaches which can be taken.

In the first place, every member of the Association must understand the contribution which affiliation with a professional organization really makes to his personal adjustment. He must recognize that, because he lives in a culture of specialists, he cannot avoid some feelings of inadequacy, dependence and insecurity. He must realize that participation in the activities of the proper professional group minimizes such feelings. Once he understands this situation, the only question facing him is a very realistic one: namely, can the American Speech and Hearing Association give him the basic professional sureties he requires? If the answer is affirmative, the inevitableness of his commitment to the Association is obvious. Moreover, the insight which comes from arriving at such an answer is most beneficial. The irritants and the imperfections which he sees in the Association now become catalysts toward improvement rather than causes for disgruntlement.

Secondly, the leaders of the Association can more effectively plan its future by evaluating proposed developments on the basis of their adequacy in satisfying the fundamental intellectual and emotional requirements of the entire membership. There has been a tendency in the past to attack the immediate needs which manifested themselves most obviously at each stage in the Association's evolution. It is important, henceforth, to look further into the future so as to avoid accepting temporary or partial solutions for the basic problems which must be met.

The foregoing comment is not intended to be critical. Only an inspired and devoted leadership during the past could have brought the Association to the point where it is today. However, the Association has now reached a magnitude and a maturity where it must move positively to counteract social forces which will otherwise divide it to the detriment of all.

A good illustration of the fact that the Association's evolution to its present status has only partially met the needs of its membership is found in its plan for clinical certification. Consider the paradoxes in the development of the present system. In its early years, the Association was com-

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posed of Associates and Fellows. An Associate was defined as a reputable speech correctionist with a college education. A Fellow was defined as a leader in the field and a research worker, usually with a doctor's degree. Throughout this time increasing pressure developed for the Association to give more positive recognition to clinical competence. The Committee on Education, which was a forerunner of the Committees on Clinical Standard and on Clinical Certification, was established. This Committee, through amendments to the By-Laws which were adopted in 1941, specified the minimum of professional courses and of clinical experience required of both Associates and for the newly established category of Professional Members. The intent was clarified further by the By-Laws that became effective in 1943. Clinical membership was established with requirements somewhat akin to those of the present Basic Certification. Fundamentally, Clinical Members were considered to be persons with bachelor's degrees capable of staffing speech clinics, correcting speech difficulties of minor nature, and doing clinical work generally under supervision and guidance. Professional Members were held to standards reminiscent of the present Advanced Certification. Such persons were required to hold master's degrees and, according to the By-Laws, must have demonstrated their ability to conduct clinics, train others in the arts and skills of the profession and, in general, be recognized as fully trained professional workers in the field of speech correction.

The practical effect of the 1943 By-Laws was to link eligibility for membership with demonstration of clinical competence. The Association was in danger of losing its strength as a learned society because its structure was becoming unsympathetic to persons interested in the research and the non-clinical phases of its fields. In consequence, a further reorganization was enacted in 1950. Eligibility for membership was separated from the requirement of clinical competence. The present pattern of Basic and Advanced Certification was established. This pattern, under new terminology, preserved approximately the standards of the earlier clinical and professional memberships. The only fundamental change was that the Association now recognized two major areas of clinical activity, and hence, established separate certification for speech and hearing.

In the years since 1950 ASHA has been satisfied to preserve the two levels of certification which were inherited from the early 1940's. True requirements have been solidified most creditably. Moreover, the Association has developed an efficient and rigorously fair system for administering the awarding of certification. But the significance of the certification program has not been defined any more clearly.

To explain further, an outside observer must find the present system confusing. In a very real sense, the two levels of certification merely mirror the fact that the field trains students at both the undergraduate and the graduate levels. An undergraduate major, if properly advised, becomes eligible for Basic Certification after a year on the job. This person can win Advanced Certification by earning a master's degree and working as a clinician an additional three years. Thus, defined operationally, the highest level of clinical recognition which the Association can bestow is avail-

able to a moderately good student who has a reasonable amount of patience and who can find steady work.

Such an operational definition is unfortunately lenient for those members of ASHA who have completed doctoral programs and are working coordinately with psychologists, neurologists, otologists, laryngologists, pediatricians, and others in the top professional bracket. Men in these other fields earn their designation as specialists through extensive study and clinical experience, which culminates in a Board Examination. ASHA members find, when they must deal with such specialists, that Advanced Clinical Certification is not fully negotiable as a label of comparable competence. This limitation presses the Association to add requirements, such as the examination in hearing, in an effort to counteract the inherent leniency of the present system. The outcome is less than satisfying to all concerned.

Again, please do not misunderstand. The point being stressed is that *the inadequacies of the present system cannot be effectively corrected until the Association defines the emotional needs of each special group which looks to it for certificational status.*

Analogous questioning may be directed toward Basic Certification. This certification has value to many ASHA members, particularly to those in clinics and in private practice. However, most of the people whom the Association should attract to Basic Certification in speech and hearing are teachers in public and residential schools. They have had to conform to the requirements established by their state boards of education or by some other accrediting group. These requirements may emphasize courses in Education and may be different from ASHA standards in other ways. We must remember that the teacher who is locally accredited has not only won job eligibility but also has a tangible symbol of competence which she can show to the world. ASHA cannot hope to win full support from every such person unless it either modifies its requirements appropriately or else makes clearer to all teachers the relationship of its program of certification to their personal needs and the other standards they must meet. In either event, and in illustration of the basic thesis under discussion, ASHA must continuously inquire what services and activities it should initiate in order to nurture an environment which gives public school speech correctionists and teachers of the hearing impaired a firm sense of belonging within the Association.

Another example is to be found in the need for legal definition of the speech and hearing fields. ASHA members who are in private practice, in hospitals and in other clinical programs separated from public education face the perpetual question as to the legal standing of the therapies and the programs of management they offer. This question, with all that it implies, can only be settled through the enacting of appropriate and uniform regulations governing licensing in the field. The present chaotic status, sanctioned by an attitude of *laissez faire* on the part of persons not immediately involved, cannot long persist. There are areas wherein ASHA must quickly drive for legal clarification of its members' prerogatives and for protection of their professional functions. If the Association does not do so, those who most need this legal clarification will seek affiliation in a more sympathetic environment.

The foregoing comments have stressed the needs of those members within the Association whose first interests are in teaching and clinical work. The same kind of analysis could be made of the Association's responsibilities to its members who are concerned with the basic sciences underlying the processes of speech and hearing. As a matter of fact, the Association's greatest present danger probably is its tendency to stress the clinical and the immediately practical so heavily. This emphasis shows itself as convention programs are organized, as expansion of publications is contemplated, and as plans for the future growth of the Association are made. In consequence, the theorists and the experimentalists among its members, who number in the minority, are beginning to feel that ASHA no longer offers them the kind of stimulating climate within which they can find real expression of their intellectual accomplishments and their aspirations.

This tendency is a tragic one which must be reversed. There are, of course, sentimental reasons for wishing basic scientists to continue their active affiliation with ASHA. There is also a much more fundamental reason: namely, that ASHA will lose a major bulwark of its strength if it ceases to hold the loyalty of this group. No field ever keeps its frontiers expanding except as it evokes questions that fire the human imagination and as it offers inquisitive men the stimulus to seek answers to these questions. The fields of speech and hearing are rich in such questions. Every member of ASHA must see that his companions who have the urge to explore these questions receive not only encouragement but also sympathetic interest in their findings. His prime motive should be, as is theirs, intellectual curiosity. The practical clinician can take additional motivation from the fact that the basic findings of one year are the foundations for the clinical progress of the next. Hence, as its leaders contemplate an evolving Association, they must always take care to keep a warm and central place within the Association for the basic sciences and for the scholars who are committed to these sciences.

The purpose in the foregoing discussion has been to review the prime danger to professional unity which threatens the American Speech and Hearing Association. This topic is worthy of discussion only if one believes that the benefits to be gained from such unity are worth the struggle one must make to preserve it. These benefits are many. Among them are two worthy of special mention here.

The foremost benefit, probably, is the intellectual impetus every member of ASHA can achieve from the complex interplay of ideas and of concepts which is inevitable when so large a variety of interests converge on the same problems. The Association does, in the broadest sense, function as a learned society so long as it brings the theorist, the experimenter, the clinician, the teacher, and the administrator together to exchange views and recast their mutual problems. Participating in such efforts, both at conventions and through the Association's journals, offers deep satisfactions.

A second benefit is the enhancement of professional status which a large and strong Association gives to its individual members. There are members of ASHA, for example, who find the boundary between commer-

cialism and professionalism more easily drawn if they can function with the backing of a vigorous Association. There are others who, similarly, find it simpler to clarify the distinction between the technician in speech or hearing and the self-directed worker in the field. Said in another way, each member faces changing social and academic patterns. The integrities of all can be more effectively preserved through the combined strength that all gain if they have a single rallying point and a unified set of purposes.

In conclusion, the purpose of this presentation is to do more than to remind the reader that the American Speech and Hearing Association can maintain its strength only as long as it supplies every member the emotional sanctuary he requires. The purpose is to do more than reiterate that the Association will grow larger and more powerful only as it finds ways to offer similar satisfactions to additional persons. The purpose is also to point with high confidence to the positive steps toward these goals which the Association has just taken or is about to take. Never has the American Speech and Hearing Association been better equipped and more thoroughly mobilized to serve its diverse membership than it is today.

Two recent developments illustrate the current vigor of the Association. The first is the fact that two journals, one devoted to research and the other to clinical matters, are now being published. The intent here has been to encourage a breadth of publication coordinate with the span of interests of the membership. The second development is the establishment of the full-time National Office. This office was activated on January 1, 1958. It is under the direction of the new Executive Secretary. The National Office is charged with seeking out new ways whereby the Association may serve its constituents. It also is to assume responsibility for solidifying existing activities and for enhancing the strengths of our profession. All these efforts have the final purpose of increasing the benefits which the Association brings to the individual member.

The fact that the American Speech and Hearing Association seeks such developments must be most encouraging to all those who are affiliated with it. ASHA is giving evidence of its capacity for progressive evolution. An Association having this capacity can supply each member with both the subtle and the obvious values which he, as a citizen in a culture of specialists, must obtain from an organization of some type. The American Speech and Hearing Association can satisfy the personal need for professional unity which every one of its members possesses. It will do so most adequately, however, only if every member in turn understands the true value to himself of the Association and, in consequence, becomes a loyal protagonist for progressive change within the Association.

Editor's Comment

With this issue of the *Journal of Speech and Hearing Disorders* the ASHA introduces a publication which, in the future, will be devoted primarily to clinical topics, techniques of evaluation, clinical research, case studies, therapy and reeducation in disorders of speech and hearing. Certain kinds of pure or basic research studies which formerly appeared in this *Journal* should henceforth be referred to another publication of the Association, the *Journal of Speech and Hearing Research*. The *JSHD* will continue to carry the official announcements of the American Speech and Hearing Association.

It is the Editor's hope that the subject matter of this *Journal* will prove both stimulating and practical to the membership as a whole, as well as to those working in the various areas of speech and hearing rehabilitation.

If, in the early stages of this transformation, the character of the *Journal* seems not to be definitive, or appears to lack integration, we pray that readers will recognize that the reconstruction of a split personality usually necessitates changes in patterns of behavior that are known to be arduous and expensive in both time and energy to all concerned.

Speech and hearing therapy is both a science and an art. It has been observed that often those who have the greatest insights or who have developed the most inspiring techniques think themselves incapable of communicating their ideas to others or do not feel that they care to take the time to do it. It is hoped that, with the help of our editorial staff, more members will make the effort to share their ideas, insights, techniques, plans and accomplishments with the Association through this *Journal*. There will be a place for brief topics as well as comprehensive ones. We look with optimism on the new section entitled 'Clinical Notes' in which we invite members to pool their knowledge. Requests have come to us to include, from time to time, specialized bibliographies. Other innovations are already taking form and will be developed as time and space will allow. Suggestions for changes and improvements will be welcomed and analyzed thoughtfully by the combined editorial staff.

In the last analysis the *Journal* can give to its readers only that which they demand and provide; your editors will do their best to make it palatable and digestible. It can, and we hope it will, be both an exciting and nourishing menu.

Information For Contributors To The Journal Of Speech And Hearing Disorders

THE FOLLOWING information is presented for the mutual convenience of Authors and Editorial Staff. The Editor will gladly supply individual copies, together with a mimeographed supplement, *Examples of Manuscript Form.* Authors who are uncertain as to the suitability of material for publication in the *Journal* are invited to correspond with the Editor before sending the manuscript.

General Procedures

Manuscripts should be submitted initially to:

Mary Huber
Department of Speech and Drama
Box 48
Los Angeles State College,
Los Angeles 32, California

Preliminary reading of the manuscript will be performed by the Editor and the Assistant to the Editor. If the manuscript appears suitable for consideration for this *Journal*, it will be transmitted to the Associate Editor or Editors responsible for the subject matter areas most directly involved.

One of the Associate Editors will correspond with the author about any changes which he and the Editorial Staff consider advisable. In this connection, authors are assured that all major and significant revisions will be referred to them for approval. When, in the opinion of the Associate Editor, the manuscript is ready for publication, he will forward it to the Editor within one week.

Preparation of Manuscripts

To expedite the processing of a manuscript the Editor suggests that authors submit their articles in the following general form.

Furnish one double-spaced *original* copy of the basic text on 8½ x 11 *bond* paper, using one side only, employing generous margins, and numbering the pages consecutively in the *upper right-hand corners.* It is assumed that the author will retain a duplicate of his manuscript and figures for reference. At the top of the first page, place the title *flush with the left margin* in capitals and lower case. Place the names of the author or authors immediately below in capitals and lower case. Place all section headings (*e.g.,*) Procedure, Results) flush with the left margin, indicating levels of subordination as follows: first level in capitals and lower case flush with the left margin; second level indented with capitals and lower case underlined; third level indented with capitals and lower case. Such section headings are almost always desirable. Authors are encouraged to

provide them in sufficient number to make the organization of the paper clear.

Enclose phonetic symbols in square brackets and phonemic symbols in diagonals; underline material to be italicized; use *single* quotation marks, except in case of quotation within quotation; present each extended quotation *without* quotation marks and as a separate indented paragraph, its left margin in alignment with the conventional paragraph identation. Spell out one-digit integers; use Arabic characters for all other numbers, except at the beginnings of sentences.

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KENNETH O. JOHNSON, Executive Secretary
The American Speech and Hearing Association

Kenneth O. Johnson was born January 26, 1920, in St. Paul, Minnesota. He received the B.A. degree from Macalester College in 1946. His graduate training was obtained at the University of Minnesota, where he was granted the M.A. in Speech in 1948, and at Stanford University, where he obtained the Ph.D. in Speech Pathology, Audiology, and Psychology in 1952.

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As the first full time Executive Secretary and Business Manager of the Association, Dr. Kenneth O. Johnson took office January 1, 1958, in the new Executive Suite at 1001 Connecticut Ave., N.W., Washington, D. C.

Projective Studies Of Stuttering

Joseph G. Sheehan

Search for the dynamics of stuttering has focused largely on two questions: (1) Do stutterers differ from nonstutterers on certain dimensions of personality? (2) Do stutterers show a common personality pattern?

Study of the personalities of stutterers has developed with the increasing sophistication of clinical psychology—from psychometric to paper-pencil tests, and finally to projective tests. The better recent research has utilized projective techniques, particularly the Rorschach and the Thematic Apperception Test (TAT).

Rorschach studies seeking differences between stutterers and nonstutterers have included those of Meltzer (*11*), Richardson (*14*), Krugman (7), Christensen (*2*), while Shames (*15*) and Sheehan (*17*, *8*) have attempted studies of the prognostic potential of the Rorschach for stutterers. Data on method, controls, statistically significant findings and interpretations attempted by these authors are summarized in Table 1.

The separation of statistically significant findings from the interpretations offered by the authors is necessitated by the frequency with which various authors have arbitrarily interpreted their data in accordance with their various philosophical predelictions.

For many researchers, the Rorschach has seemed to offer an amorphous flux from which any desired interpretation could be pulled, independently of the statistically defensible data. Krugman (7), for example, offered the interpretation that stutterers manifested personality traits of the obsessive-compulsive type, in line with her prior leaning toward Fenichel's psychoanalytic theory (*4*). All three of Krugman's statistically significant findings, however, exactly contradict her conclusions. Low response productivity, refusals and poor form level might indicate other kinds of disturbance, but they undermine rather than support the notion that stutterers are obsessive-compulsive.

The findings of a number of TAT studies of stutterers are summarized in Table 2. Table 3 presents findings of four studies utilizing the Rosenzweig P-F (Picture-Frustration) test, while Table 4 summarizes two self-concept studies.

Joseph G. Sheehan (Ph.D., University of Michigan, 1950) is Associate Professor of Psychology, University of California at Los Angeles. The author is indebted to Susan Dwyer Cane, Leonard Korot and Mary Fulton for assistance in the preparation of tables for this article.

TABLE 1. Rorschach Studies of Stutterers.

Investigator	*Subjects*	*Controls*	*Significant Findings*	*Interpretation*
Meltzer 1944 (*11*)	50 stutterers Age: 8-17 Mean: 12.46 I. Q: 97.20	50 matched controls Age: 8-17 Mean: 12.67 I. Q: 97.20	a) Lower F+% b) Higher Z c) Higher W	Galaxy of interpretation of non-significant differences. Stuttering children more productive and more responsive, but less well balanced than control group.
Richardson 1944 (*14*)	30 stutterers Adult	30 matched controls Age, sex, mental ability, and education	No significant differences	More detailed in their approach to problems. Average amount of inner living, more constricted than average, and tend not to respond impulsively to outside stimuli.
Krugman 1946 (*7*)	50 stutterers Age: 6½-15	50 problem children Matched case by case for age, I. Q. and sex	a) F—higher. b) More refusals c) Low productivity	Stutterers showed wide range of personality traits. Stuttering closely associated with emotional and personal maladjustment frequently manifested by obsessive compulsive traits of obsessional neurosis.
Christensen 1951 (*2*)	30 stutterers Age: 4½-12½	30 siblings Age: 5-14	a) Significantly more (Hd) and (At) responses to card VI. b) Significantly faster reaction to achromatic cards. c) Projected significantly more additiona space and additional (CF). d) No significant differences in F responses.	
Shames 1952 (*15*)	27 stutterers and 10 other speech problems	Compared stutterers before and after treatment	None better than .05 level. Factors related to improvement at 10% level of confidence: absence of color balance signs; reduction of populars increase in form content reduction of M (Sum C Fc c C' P, 4 or more F%, 50% or less M, 3 or more).	These factors tentatively related to improvement although statistics inconclusive.
Sheehan 1954 (*17*)	35 stutterers	Dropped compared to continued; improved most compared to improved least	Those with more movement responses M, FM, m, more likely to remain in therapy and to improve (P .02)	Stutterers relatively good treatment prospects, since high unused ego strength shown on Klopfer's RPRS scale.

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TABLE 2. TAT Studies of Stutterers.

Investigator	*Subjects*	*Controls*	*Significant Findings*	*Interpretation*
Richardson 1944 (*14*)	30 stutterers adult	30 controls, ages, sex, and college experience. Decile rating for mental ability	None.	Greatest needs for achievement and affection. (Control showed higher proportion.)
Christensen 1952 (*2*)	30 stutterers age 4½-12½	30 siblings Age 5-14	Projected significantly more in situation involving nursing at breast. Identified significantly more with male figure in pictures which furnished opportunity for aggression. Projected significantly more sadness and choking.	More unfavorable outcomes in pictures which furnished opportunity to express attitudes aggression.
Lowinger 1952 (*8*)	29 nondelinquent, neglected and orphaned stuttering children	29 controls, matched for age (8-15) and 70 better WISC IQ	Stutterers do not differ significantly in degree of aggression. Stuttering girls significantly less aggressive than stuttering boys ($P < .05$ level). Stutterers more guilt-burdened, but not significantly. Correlation between aggression and guilt, .63 -.84, significant for both groups. No difference between groups on orality. Girls of both groups manifest significantly more orality. No significant relation between TAT and Rosenzweig PF aggression and guilt, or overt aggressive behavior for either group.	Findings on aggression and orality did not reveal a dynamic pattern specific for stutterers.
Wilson 1951 (*23*)	30 stutterers	30 Nonstuttering siblings	Stutterers more aggressive; ($P < .01$) more inverted hostility; ($P < .05$).	
Bloodstein and Schreiber 1957 (*1*)	30 parents	15 adult stutterers 15 nonstutterers	Analysis of variance yielded nonsignificant F on checklist for obsessive-compulsive characteristics.	Stutterers no different from nonstutterers in obsessive-compulsive tendency.

TABLE 3. Rosenzweig P-F Studies of Stutterers.

Investigator	*Subjects*	*Controls*	*Significant Findings*	*Interpretation*
Madison and Norman 1952 (*9*)	25 stutterers Mean age: 23.3 Age 14-59	Rosenzweig's norm group	Significantly higher intropunitiveness and need-persistence. Significantly lower on Obstacle Dominance and Extrapunitiveness.	Findings seem to correspond to pyschoanalytic contention that stuttering is compulsive in nature, with anal-sadistic tendencies resulting in turning in of aggression.
Quarrington 1953 (*13*)	30 stutterers Mean age 30.4	Rosenzweig's norm group	No significant differences.	Study failed to confirm Madison and Norman findings. Their findings may be due to bias in sampling or in method employed. Efforts to eliminate hypothetical expectations from scoring not set forth. In this present study, two psychologists scored tests independently; they were unaware of purpose or opinions of research group.
Murphy 1953 (*12*)	30 stutterers Adults	30 nonstutterers, adult	Stutterers showed higher percentage of ego defensiveness, at .05. Stutterers showed more extrapunitiveness (.05). Stutterers showed less intropunitiveness (.01). Stutterers showed less group conformity (.01).	
Lowinger 1952 (*8*)	29 stutterers, Non-delinquent, neglected and orphaned children (children's form)	29 nonstuttering children, 8-15 years, matched for age and 70 or better WISC IQ (children's form)	No difference in frequency and intensity of guilt or aggressive responses. Inverse relation between manifested aggression and guilt, but not statistically significant.	No specific dynamic pattern characteristic of stutterers.

TABLE 4. Self-Concept Studies of Stutterers.

Instrument	*Investigator*	*Subjects*	*Controls*	*Significant Findings*	*Interpretation*
Q-technique	Fiedler and Wepman 1951 (*5*)	10 stutterers adult	6 controls, sex, age, socio-economic status, education	None.	No trends between stutterers and nonstutterers. On composite scales for group of clinical psychologists and mental hygiene patients; stutterers looked on themselves more like psychologists than patients.
W-A-Y technique	Zelen, Sheehan and Bugental 1954 (*25*)	30 stutterers in group therapy	160 controls	Stutterers made more positively toned statements about themselves. Normals mentioned age and sex more frequently than stutterers. Stutterers for whom therapy was successful made fewer negative statements initially.	

TABLE 5. Level of Aspiration Studies of Stutterers.

Instrument	*Investigator*	*Subjects*	*Controls*	*Significant Findings*	*Interpretation*
Rotter Board	Sheehan and Zelen 1951 (*20*)	20 stutterers	20 nonstutterers	No significant differences; stutterers somewhat lower than controls.	Statistical 'Zone of Uncertainty.'
Carl Hollow Square	Mast 1952 (*10*)	Stutterers	Discrepancy scores	Significantly lower discrepancy scores.	Indicates that stuttering group's defenses against failure were overly cautious, in the defeatist category.
Rotter Board	Sheehan and Zelen 1955 (*21*)	40 stutterers	60 matched controls	Stutterers show lower discrepancy score ($P = .05$), more range ($P = .05$), and greater frequency of success ($P = .02$).	Stutterers significantly lower in level of aspiration, stay in success area, avoid threat of failure.

The findings are not particularly consistent with each other, and some studies are not consistent internally. When inflation of probabilities (*3*), capricious interpretations, experimenter bias, and conclusions based on non-significant differences are eliminated, very little is left to show that stutterers are different from anyone else. The objection will be raised by some that differences were really there, but that these tests were unable to show them. However, such people either have a theory which cannot be tested operationally, or they reject the best tools modern clinical psychology has to offer. Surely, personality differences substantial enough to be worth talking about should have made their appearance in several of the studies. The search for personality differences between stutterers and nonstutterers may be intriguing enough so that it will be continued, but the trail does not look promising at this point.

One dimension on which studies have shown agreement is level of aspiration. These studies are summarized in Table 5. The lower level of aspiration of stutterers is probably a manifestation of their defensiveness and efforts to avert danger of failure. The lowered aspirations of the stutterer appear to stem from the ego-protective level of conflict, but may also be interpreted as a reaction secondary to the handicap.

The low degree of correspondence of agreement on most of the projective studies should be discouraging to those who are fond of claiming that stutterers show a definite personality pattern, but they have valiantly stuck to their claims nonetheless (*22*, *24*). However, until research data can be found that stutterers do differ in specific dimensions from nonstutterers, and unless these differences hold up on cross-validation or repetition of the study, the conclusion will have to remain that stutterers do *not* show a definite personality pattern. This lack of a pattern characteristic of the symptom makes stuttering different from hysterical aphonia, ulcer, depression, and most other emotional problems. What makes stuttering different from these other problems, even if stutterers are not different from other people (*6*), should become a central line of investigation in future studies of the dynamics of the stutterer.

Clearly emerging from these consistently negative findings is a puzzling feature of the psychology of stuttering. Presumably, those children who begin to stutter do so because they are different in some way from children who do not begin to stutter, or at least, who do not persist in the stage of hesitancy and syllable repetition through which nearly all children seem to pass.

The secondary effects of stuttering are known to be singularly pervasive. Since speech is such a vital tool of social communication, and since stuttering begins typically between the ages of three and seven, nearly every important event in the life history of a stutterer will have been affected to some degree by the fact of the stuttering. The direction of the effect of stuttering on the personality, like that of any socially visible handicap, should be to make the stutterer still more different, rather than more like, his normal-speaking fellows. Speech correctionists are in the habit of speaking of the 'warping' of the stutterer's personality, an apparently logical view even in the absence of substantial evidence.

The puzzle is this: despite what

should be differences in the young child who begins to stutter, and despite the tremendous secondary effects of stuttering and the personality warping alleged to follow from the experience of growing up as a stutterer, no dynamic differences appear between adults who stutter and adults who do not—even by the best tools modern clinical psychology has developed to measure such differences. Moreover, no consistent personality pattern emerges for the stutterer. From these results we are forced to conclude one of the following: (1) children who begin to stutter do not differ dynamically from those who do not; (2) children who begin to stutter do differ dynamically, but the experience of growing up a stutterer somehow offsets the differences; (3) differences are present in either or both the child and the adult stutterer, but projective techniques in their present state are so inept that they are unable to pick up the differences.

If the last point is to be taken as the way out, then we must account for the relative success of projective techniques in distinguishing between other nosological groups. In this regard, it is important to distinguish between failures of the instrument, as such, from failures of investigators to handle their problems of design and statistical interpretation.

In terms of the presumed dynamics of the stuttering process, it is very clear that any theory which claims either consistent personality differences between stutterers and nonstutterers, or which describes stutterers in terms of some particular personality pattern, is simply floating around in a mystical way without visible means of support (*4, 22, 24*).

But the essentially negative results of the projective studies pose certain challenges and problems for any systematic explanation of stuttering, including the approach-avoidance conflict theory of stuttering set forth by the author (*16, 18, 19*). If stuttering results from a conflict, or from several levels of conflict, why do not these conflicts show in the dynamic patterns of the stutterer?

Perhaps stuttering is a conflict, at many levels, which can be carried by people with many different dynamics. If there are several different dynamic patterns, these may obscure each other in the group studies which statistical control necessitates. Possibly there are several routes or avenues to becoming a stutterer; from this it might follow that there are several different kinds of stutterers, psychologically speaking. If these hypotheses can be seriously entertained, then we have an important lead for therapy. If there is more than one avenue in, probably there is more than one avenue out. Possibly, there are several different paths out of the jungle that we know as stuttering.

Summary

Recent studies of the personality of stutterers utilizing projective methods were reviewed critically with reference to two questions: (1) Do stutterers differ from nonstutterers? (2) Do stutterers show a common pattern? Rorschach, TAT, Picture-Frustration, Self-Concept and Level of Aspiration studies were reanalyzed and their findings were compared. Except for showing a somewhat lower level of aspiration, stutterers showed no reliable differences from normal speaking controls; and no consistent personality pattern could be found for stutterers. Implications of these

findings for therapy, present theory, and future research were discussed. It was suggested that stuttering may be a kind of conflict which can be carried by individuals with many different dynamic patterns, and that there may be more than one path of recovery from stuttering.

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Ibi Fuistis

Robert W. West

There are two kinds of history—fictional and factual. Paradoxically we are usually pretty definite about the former and, on the other hand, indefinite about the latter. According to fictional history our country began on July 4, 1776, when it is said that the delegates to the Continental Congress affixed their names to the Declaration of Independence, after which they are thought to have rung the liberty bell; and then began the War of the Revolution. According to factual history there actually was no one definite time for the beginning of the U. S. A. The war had already started by July 4, 1776. American and British armies were in the field. Warships were cruising off our coast. Battles had already been fought. We had ere this closed our ports to English commerce and opened them to the trade of the rest of the world. The resolution of the Declaration of Independence was voted on July 2. The signing on July 4 was by John Hancock and the secretary only. The liberty bell was rung on the public proclamation of the Declaration on July 8. Then the official Declaration was engrossed upon parchment and the several delegates signed their names as was expedient. The last name did not appear until November of 1776. That is factual history.

So with the birth of the ASHA. The fictional history has it that 12 persons met in the McAlpin Hotel in New York shortly after Washington had said farewell to his officers at a dinner elsewhere in the city. These 12 organized the new association. They were the charter members. But it was not that simple.

Factually, the Association began in an informal and impromptu meeting in Lee Travis' dining room in Iowa City. The only two persons I recall being at that meeting were Lee and myself, though I am sure that there were at least three others present. At that meeting the determination was expressed to call together a rump session of those interested in speech correction at the convention of the N.A.T.S. That meeting at Travis' was months before the meeting at the McAlpin, recorded in the archives of the Association as having taken place Dec. 29, 1925. According to the minutes of the McAlpin meeting the following

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11 persons were present: Mary A. Brownell, U. of Wis.; Elizabeth McDowell, Columbia, T. C.; Jane Dorsey, Smith College; Alvin C. Busse, N. Y. U.; Robert West, U. of Wis.; Wm. J. Farma, N. Y. U.; C. K. Thomas, Cornell Univ.; Jane Bliss Taylor, Vassar College; Thyrza Nichols, Bryn Mawr; Sara M. Stinchfield, Mt. Holyoke College; Richard Borden, N. Y. U.

You may or may not recall that, according to factual history, 1925 was the year of two infamous trials. During the summer Clarence Darrow and Dudley Field Malone suffered in a sweltering little courtroom in Tennessee in a vain attempt to defend John Scopes against the charge of teaching the truths of evolution; and in the late Fall in Washington, D. C., Col. Billy Mitchell was accused, tried, and convicted of teachings prejudicial to the armed services in that he openly advocated the organization of a separate branch of the service to be called the Air Force. These two trials so pre-empted the headlines of the world's press that little notice was given to the meeting of this tiny group that met in the McAlpin in the last week of that troubled year. Quite undaunted by the fact that they were being ignored (perhaps because of it), that group created a committee to determine who were to be regarded as charter members. Somehow those present sensed that some day the Association would be so significant that charter membership in it would be a signal honor. They apparently hoped to settle for all time the question of who were and who were not charter members. Ah, but their hopes were foiled. I find in the Archives of the Association a list of 22 charter members. But, when we continue with our scriptural exegesis, we have reason to question the accuracy of this list. The minutes of the second annual meeting of the association held in the Palmer House, Chicago, in Dec. 1926 state that 'of the charter members only the following were present' and farther on 'the following charter members were absent.' Now these two lists, combined, are not identical with the list of charter members shown on page one of the Archives. Hence we may say that, according to the Gospel by Matthew, there were 22 charter members; and according to Mark there were 24, and three of the 24 were not among the 22 and one of the 22 was not among the 24. Those appearing on both lists, we may feel confident, were really officially rated as charter members. Only eight of these were present at the meeting of organization. Typical of the names in question is that of Lee Travis.

Let us trace that name in the minutes. I have told you that in a very real sense the association was born in the Travis home. So, if Lee is not a charter member, he is at least a parent of the association. At the meeting of organization, it is reported in the minutes, that among others proposed as charter members was a 'Mr. Travers of the University of Iowa.' It is my guess that this man Travers was Lee Travis. The secretary was a New Englander, and to *her* Travis and Travers were acoustically cognate, if not identical. Then, too, she may have employed one of the variant spellings then in use for the great medicine man of the tribe of Iowa Indians. (To the French voyageurs the Travis home on the bank of the Iowa River was known as the Maison Traver. It may have been so named because it was a place of traversing or fording the stream.)

You will recall that only a few years earlier a man lived by the name of Shakespeare whose moniker was spelled in various ways. We were less fussy about orthography in those quaint old days.

It is not true that our Lee Travis was the same as Francis Lightfoot Lee of Virginia, one of the signers of the Declaration of Independence; nor was he Richard Henry Lee, another signer; and he definitely was not Edward Rutledge of South Carolina. As a matter of factual history, it must be said that at the time of the signing of the Declaration of Independence, Lee Travis could not have been, at the very most, over 10 years of age. But soon after the time that Lee Travis did not sign the Declaration of Independence he secured the promises of various authorities in our field to send to him, within one year at the latest, via pony express, the manuscripts that were to make up the book *Handbook in Speech Pathology*. Apparently most of those manuscripts were delivered by oxcart, for the book was not published until 1957.

But to return to Travis: No form of the Travis name appears in the official list of charter members in the Archives. But his name appears as one of the charter members attending the meeting in Chicago, referred to a moment ago. At that meeting he was elected Vice President. The other three officers were charter members as listed on the official roster in the Archives. But in the report of the secretary of the meeting of the association in New York, Jan. 1, 1930, there appears a sheet, evidently used as a check list for the roll, in which the names are divided into two classes, 'Charter' and 'Recent.' Among the 'Recent' members is the name of Lee E. Travis. No form of the Travis name appears in the 'charter' list.

The Travis case is typical. Other names in like manner complicate our factual history of the origin of ASHA. The names of charter members that are not in question are: Margaret Blanton, Smiley Blanton, Richard Bordon, Frederick Brown, Alvin Busse, Pauline Camp, Eudora Estabrook, Sina Fladeland, Mabel Gifford, Max Goldstein, Ruth Green, Elmer Kenyon, Mabel Lacy, Thyrza Nichols, Samuel Robbins, Sara Stinchfield, Jane Taylor, C. K. Thomas, Lavilla Ward, Robert West, and Jane Dorsey Zimmerman.

In addition to the confusing record of Travis (to whom the association may look as one of the most honorable progenitors) are the records of Mary Brownell, Elizabeth McDowell, and Laura Heilman. These four persons may not have unequivocal records as charter members; but Brownell and McDowell were organizers of the Association and Heilman was one of the leaders in the California field who supported the organization of the ASHA. Of all the persons mentioned in the archives, or in the minutes, as being charter members only six remain on our roll today. A few of those whose names have been dropped have undergone change of interest, but most of the cancellations have been of the names of those who have gone to a land where palates are never cloven, where timeless fluency permitteth no stuttering, and where no one suffereth aphasia before he reacheth the end of eternity. Our members who have gone to that bright land have retired—gladly, I hope—from this, our temporal profession. To the best of my knowledge, those whose names still remain on our roll are: Brown, Dorsey, McDowell, Robbins, Stinchfield, and West; about

one out of four of the charter members. Five of these seven were present at the historic meeting of the organization in 1925 at the McAlpin Hotel, where according to fictional history our Association began.

As to size, the Association got off to a slow start. At the McAlpin meeting in 1925, 11 persons were present; a year later, the same number, but not the identical 11; a year after that, at Cincinnati (just 30 years ago) only 6 members showed up. What did the officers do then? Why, they raised the membership fees! At Chicago, in '28, 8 members were present. In spite of the smallness of numbers during these early years the Association thought big thoughts. The minutes show that the members wrestled with the problems of membership, constitution, professional programs, standards, ethics, terminology. They even considered relations with other professional organizations, which was about like a canoe in the N. Y. Harbor exchanging salutes with the Queen Mary.

The upsurge in attendance began when we returned to the McAlpin in 1929. Fifteen members were present as well as a large number of persons asking to have their training, experience, and accomplishments evaluated for membership. During the early years of the decade beginning with that meeting the formulae were worked out for the acceptance into membership of hundreds of qualified workers in our field. The last half of the decade was the beginning of the rise of the membership curve. At this time we accepted to membership many well established and highly reputed professional workers who honored us by joining our ranks as much as we honored the new members by accepting them. At this time, too, youngsters were admitted to communion who have since grown to gianthood in our profession.

The first 10 years, therefore, of the building of ASHA were spent on the drawingboard and in the laying of the foundation. Little was known about the Association by the general public until 1935.

The rise of the Association in membership and influence since 1935 is well known to most of my hearers. But let us consider for a moment the reason for this rise. I can find no more cogent explanation for it than this: In the early years of our history the statesmen of our Association planned a structure in which everyone of you had a place—a place in which you could engage in rewarding service. The structure provided the moral support to all capable persons of good will who wished to engage in our profession and to help others of like purpose in its practice. I do not want to be recorded as saying that in every detail the structure was builded with conscious wisdom. Sure! Some of the decisions were blind, selfish, opportunistic. Some were brilliant, generous, and professionally principled. Some were hotly contested and disputed. The decisions growing out of these contests were often accidentally right. I think unconscious intuition had a large part in directing our destiny.

Most of the charter members of this Association were planning for you. It was as though you were hovering behind the chairs as unseen guests in the Travis dining room; as though you filled the apparently empty seats at the first McAlpin meeting; as though you made up the missing quorums at the meetings of 1926, 1927, and 1928; and as though your votes swelled the majority for the

wise decision at every critical juncture of our planning. Your constant presence checked, guided, and humbled us. Our Association is great because at its building you were there, you the ASHA member.

And who are you, the ASHA member? You are the researcher. You have asked questions whose answers are known only to God. Long and drudging hours you have spent in painstaking experiment. At times it seems that your quest is futile and your labors in vain. Sometimes the answers developed by your research are obscure and their significance straitly limited. But you have the joy of wresting an ounce of finite fact from the countless tons of infinite truth. Ignorance and knowledge: You have decreased the one and increased the other. Your name may be known to few and remembered by fewer; but the facts that you have discovered will never be lost. You have given them to the world; and the world will treasure them. God, watching you, smiles that you have guessed one of his secrets and have put your guesses to the tests of experiment and reason. You are the researcher.

Who are you the ASHA member? You are the teacher. You are the trainer of therapists. You teach the students to observe and to interpret. You show them the art of speech correction, and the science of speech therapy. You inculcate in them the ethics of our profession and the ideals of our discipline. You impress them with the joy of accomplishment in bringing communication to those born without it and to those who have lost it. You teach your students the philosophy of professional obligation. You help them to see that he that loseth his life shall find it. You are the teacher. In your charge, also, are those who would learn the art and science of research. You pray with these students as they labor in library, field, and laboratory. You give them courage to continue when it seems as though the truth they are seeking is veiled from their eyes. You teach them to approach their investigations with imagination, humility and self-skepticism. You glory in the success of your students. Some have made discoveries more significant than yours. You take pride in the fact that, though you showed them no original fact or principle, you showed them the way of scholarship. You are the teacher.

Who are you, the ASHA member? You are the administrator. You have learned that the meanings and purposes of a clinical organization involve patients and students. The interests of clinicians themselves, and of the administrator, yourself, must always be subordinate to those of the persons you serve. You are responsible for the professional standards and ethical principles of your organization. You may expect special loyalty from the ASHA members of your staff; and loyalty between staff and chief is a two way relationship involving sympathy, understanding, and moral support in both directions. Yours is a difficult task. Though patient and family and clinician are in theory striving toward the same end, in practice the efforts are often conflicting. You must evaluate these purposes and reconcile their differences. You must not only be just yourself; you must define the standards of justice to apply to your staff. You are the administrator.

Who are you, the ASHA member? You are the writer. Chapters, pamphlets, books, articles—they are born of your mind; and they are usually

born with great travail. Upon the quality of your brains depends the standing of our profession. You are the window-dresser of our Association. You are also the right arm of the teacher, the researcher, and the administrator. You are the organizer and systematizer of our professional lore. You capture a thought and develop it. You put it in written form. You write and rewrite many times. You prepare a typescript, and art work to accompany it. All this usually without the slightest guarantee that your time and money spent will be paid for, or even that the opus will see the printed page. Sometimes an editor or publisher will accept your work. Then you revise and proof and perfect the product of your brain. Finally it appears in print. You wait until the professional reviews appear —articles written in the tiniest fraction of the time it took to write the work reviewed. You have made a contribution. You do not expect a portion of gratitude for it; but when you receive such thanks, you are as happy as a father congratulated by his own son. You are the writer.

Who are you, the ASHA member? You are the speech correctionist. Like that of the writer, your task is often a thankless one. Yet when you see improvement in your patient, joy fills your heart; and when the patient thanks you for the improvement, the heart runneth over. You are the clinician. You are the reason for being of all the others in the profession. Without you, the researcher is pedantic, the teacher is futile, the administrator is helpless, and the writer is but a voice crying in the wilderness. You are the front-line trooper. You are generous, sincere, sympathetic, cool-headed, warm-hearted, conscientious, ethical, resourceful, analytical, patient, hard-working, loyal, attractive, cultured, emotionally stable, and professionally informed. All these! You are, therefore, impossible. You cannot be—and yet you are; you really are. You are the speech therapist.

Researcher, teacher, administrator, writer, therapist, you are the ASHA members who builded our Association. In fine: Who can name the first agents of any human institution? And who can say when they clearly envisioned the structural outlines of the society to be built? These origins are lost in the chains of cause and effect, of serial communications, and of the evolving forms of the institution in question.

So with the American Speech and Hearing Association. But, my dear friends, verily may I say in the language of our Latin title, wheresoever ASHA was born, *ibi fuistis*, there were you.

Report To Members On The Results Of The 'Membership Opinion And Attitude' Questionnaire

Margaret Hall Powers

In September, 1956, as a project of the Committee on Association Planning, a questionnaire was mailed to all members of the association in order to poll their opinions on present ASHA practices and to determine their attitudes and opinions concerning a large number of possible projects or lines of development which ASHA might undertake in the future. The questionnaire was mailed to the 3,423 members of that date. Completed questionnaires were returned from 1,533 members or 45 percent.

Questionnaire data were coded and punched on Keysort cards so that interrelationships of various factors could be studied. The writer wishes to acknowledge the invaluable service given by the Mu Chapter of Sigma Alpha Eta at Northwestern University, under the supervision of Mr. Keith Graham, Faculty Sponsor, which undertook the laborious task of coding the data and punching the cards.

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General Results

Analysis of factual data asked of each member in Section I of the questionnaire shows that those returning the questionnaire were typical of the membership as a whole in level of certification, fellowship status and similar factors. It can be concluded that those answering the questionnaire were probably representative of the entire group of members.

Of the 1,533 who answered the questionnaire, 537, over one third, wrote in comments on Section II, 'Attitudes Toward Present ASHA Practices,' in addition to checking their response to each item. Two hundred seventy wrote in comments on some or all parts of Section III, 'Attitudes Toward Future Growth and Functions of ASHA.' A number of members wrote letters to accompany the completed questionnaire, making suggestions, stating dissatisfactions in detail, or expressing interest in seeing certain functions or projects undertaken by ASHA.

From the high percentage of returned questionnaires and from the number of extended comments written on the questionnaire itself or in accompanying letters, it can be concluded that a high level of interest

TABLE 1. Responses to Section II, Attitudes Toward Present ASHA Practices (N = 1,533).

		Fairly Well Satisfied	*Neutral**	*Considerably Dissatisfied*	*Greatly Dissatisfied*
1. Publications:	Number	1283	174	60	7
	Type	1121	235	161	16
2. Conventions:	Programs	1091	368	67	7
	Geographical Distribution	962	444	107	20
3. Certification:	Standards	1081	255	147	50
	Process of securing	602	301	419	211
4. Election of Officers:					
	Nomination procedure	737	722	59	15
	Election procedure	726	726	65	16
5. Committees:	Appointment Procedure	671	771	78	13
6. ASHA organizational structure		846	593	79	15
7. Your opportunities for participation in ASHA affairs		662	574	243	54

*Failure to give any response on an item was counted as 'neutral.'

exists among the members. It can perhaps be further concluded that there was a marked morale benefit to the members in the circulation of this questionnaire, in that it provided a means for members to express their opinions and thus to have a part in determining the future growth pattern of their association.

Objective Results and Conclusions

The results for Section II of the questionnaire are summarized in Table 1. In spite of the vehemence of many of the written comments by members, it is reassuring to note a considerable degree of satisfaction with most of ASHA's current practices.

The present practice about which the greatest amount of dissatisfaction was expressed was Item 3, 'Certification.' Although 'Standards' of certification cause only mild dissatisfaction to some, 'Process of securing' certification shows marked dissatisfaction. Out of 1,533 respondents 630 checked either 'considerably' or 'greatly dissatisfied.' This was also the item which stimulated the greatest number of additional written comments and letters. It should be borne in mind, of course, that the study was done over a year ago and that since then the Executive Council and Committee on Clinical Certification have taken steps to improve this situation.

Another item on which considerable dissatisfaction was expressed was 'Your opportunities for participation in ASHA affairs.' The fact that 297 members feel that they have little opportunity to participate warrants serious thought and planning on the part of the Executive Council and various committees of the association.

Analysis of 'dissatisfied' responses by age groups, to all items in Section II, showed that whatever dissatisfaction exists is fairly evenly distributed over the entire age range of members. There was no tendency for younger or for older members to be more dissatisfied than other age groups.

The results for Section III of the questionnaire are summarized in Table 2. It will be noted that for all items there is a preponderantly positive response. Only two items stimulated a

TABLE 2. Responses to Section III, Attitudes Toward Future Growth and Functions of ASHA (N = 1,533).

Express your attitude toward some of the possible changes and innovations in ASHA's functions, activities, and services which might take place in the future by placing a check after each item in the column which most nearly expresses your attitude. Items are grouped into six categories.

	Consider Urgent	*Consider Desirable*	*No Opinion**	*Opposed*
A. Services to Members: Improved Communication				
1. Provide to members more information on what Council and committees are doing, possibly by means of a newsletter	280	1053	176	24
2. Provide more opportunities for members to express opinions and affect decisions	254	882	366	31
3. Provide information regarding graduate fellowships and assistantships	404	864	254	11
4. Provide information regarding available research funds	419	885	222	7
5. Disseminate news about members (new positions, etc.)	162	880	440	51
6. Disseminate news about professional developments in speech and hearing	844	581	104	4
7. Facilitate interchange of research ideas and data	680	672	166	15
Services to Members: Miscellaneous				
8. Job placement service	463	800	240	30
9. Sponsor group health and accident insurance for ASHA	137	356	680	360
10. Investigate and take appropriate action upon grievances of members, of a professional nature	315	743	401	74
11. Facilitate advanced, specialized training of members, through such means as short, intensive institutes or work-shops	567	754	166	46
B. Services to Speech and Hearing as a Profession:				
1. Work for up-grading of training programs throughout the country	835	585	104	9
2. Improve efficiency of ASHA's own certification procedures	871	451	203	8
3. Work aggressively for acceptance of ASHA certification standards by state and local school systems, by related professions, and by employers of speech and hearing therapists in general	936	452	80	65
4. Aggressive and continuing campaign to secure membership and certification in ASHA of all eligible speech and hearing therapists	842	557	94	40
5. Encourage state associations of speech and hearing therapists	612	723	161	37
6. Work toward eventual state certification and / or licensing of speech and hearing therapists	697	547	181	108
C. Services to the Public				
1. Planned dissemination of information on speech and hearing disorders and their treatment (press, radio, TV, etc.)	666	751	89	27
2. Planned publicizing of desirable standards of training for speech and hearing therapists	682	763	75	13
3. Preparation and dissemination of lists, by states, of reliable sources for diagnosis and therapy	819	598	90	26
4. Encouragement of speakers' rosters, private therapist registries, etc., at state and local levels	318	912	275	28
5. Preventive and educative measures to improve ethical practice of speech and hearing therapists	562	846	117	8
6. Active investigation and policing of ethical practice violations by members of ASHA	503	684	284	62
7. Active cooperation by ASHA with state and local agencies in promoting and expanding speech and hearing services	613	779	125	16

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TABLE 2 (Continued).

	Consider Urgent	*Consider Desirable*	*No Opinion**	*Opposed*
D. Service to Allied Professions and Sciences				
1. Encourage joint committees with other professional associations to study mutual problems, set standards, organize studies, develop services, etc.	491	903	134	5
2. Prepare for wide dissemination to other professional and scientific groups a clear statement of what the field of speech and hearing is, its objectives, standards, practices, scope, training requirements, and potential services	841	600	87	5
3. Provide related professional groups at state and local levels with lists of approved sources of speech and hearing service	768	660	93	12
E. Services to Federal, State, and Local Governments				
1. Initiate active and continuing liaison with all U. S. Government agencies related in any way to speech and hearing, in order to secure good representation of our interests	542	666	311	14
2. Systematic liaison between ASHA and state and local departments of education and state rehabilitation agencies	682	643	196	12

*Failure to give any response on an item was counted as 'no opinion.'

strong 'opposed' vote, A-9 and B-6. The lack of strong interest in A-9 could possibly be interpreted as a lack of understanding of, or familiarity with, the group insurance concept and may not be at all indicative of what membership reaction would be to a specific insurance proposal, accompanied as it would be with full explanation. The sizable 'opposed' vote on B-6 may be indicative of the threat to their own status which some individuals feel when any type of certification or licensing is proposed, or the vote may have other meanings.

Although the vote was predominantly positive on all items but A-9, the strongest favorable vote (sum of 'consider urgent' and 'consider desirable') was given as follows. Over 90 percent of those answering the questionnaire gave a favorable response to: A-6, B-1, B-3, B-4, C-1, C-2, C-3, C-5, C-7, D-1, and D-3. From 85 to 89 percent gave a favorable response to: A-1, A-4, A-7, A-11, B-2, B-5, and E-2.

The Executive Council at its meetings in November, 1957 considered a detailed report of the questionnaire study, of which the above account is a brief summary. This expression of membership opinion and attitude was given and will continue to be given serious consideration by the Executive Council, the several committees of the association, and by the Executive Secretary, as well as by the Committee on Association Planning.

Cerebral Palsied Speech Correction And The Clinical Team

Edwin R. Schoell

For a period of more than two years a unique program in the correction of cerebral palsied speech has been in operation at Hillside House, a resident school for cerebral palsied children in Santa Barbara, California. The speech rehabilitation program at this school has been conducted for many years in coordination with the speech clinic at Santa Barbara College, a branch of the University of California. Working at Hillside House under the supervision of the College speech correction staff and in conjunction with the resident school's supervisory personnel and teaching staff are a number of student speech clinicians, most of whom are studying at the College to become professional speech therapists.

These students, at an early stage in their training, begin work with the cerebral palsied. This early contact gives them an opportunity to observe the children and to familiarize themselves with the problems. During this period the cadet therapist becomes thoroughly aware of the whole rehabilitation process. The clinician-to-be both observes and gives limited assistance, if so inclined, in the physical, occupational, and speech therapy programs. He spends a part of the time becoming acquainted with the organization and management of the school and devotes additional time to monitoring play groups, assisting in recreational activities and conducting reading periods for the older children and storytelling sessions for the younger ones.

The student then progresses to more direct contact with the speech activities by being assigned to one of the operational speech therapy teams. He begins this phase of his training by observing the methods and techniques employed in the clinical sessions, by carrying out simple assignments made by the leader of the team, by assisting in the record keeping and acquainting himself with the procedure for organizing and arranging the clinical groups to conform with the routine of the school. The cadet clinician ordinarily works the equivalent of a school semester as an observer before acquiring full team membership. Ordinarily in the

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second or third semester of clinical experience, the cadet is advanced to clinician status, serving as a member of the clinical team with which he began. As a team member the clinician now participates in all phases of speech activity from lesson organization and preparation to teaching and evaluation. The final phase of training occurs in the third or fourth semester when the clinician advances to team leader status. During this period he assumes more responsibility for selection of children for group therapy, for their rejection or retention after a trial period, for progress reports and evaluation of the children, and for assisting subordinate team personnel.

During the third and fourth semesters the students are also engaged in individual clinical practice at the College clinic and at other local schools for exceptional children. Since most of the students receive a state speech correction credential, they also experience a semester of observation and another semester of practice teaching in classroom, group, and individual therapy in the public schools.

In order to insure the student thorough training in specialized phases of speech correction and at the same time to extend the opportunity for speech rehabilitation to as many handicapped children as possible, a program unique to that found in most institutions for the cerebral palsied was developed at Hillside House. The speech correction program and the composition of the clinical teams can best be understood by discussing first the reasons for their existence.

In the speech rehabilitation program, approximately seventy per cent of the speech work is carried on in group therapy. The reasons for maintaining a program dominated by group activity are believed to be sound both for the child and for the clinician:

1. The group therapy program, through two years of continuous operation at Hillside House, has enabled the available speech personnel to aid 100% to 125% more needy children than had previously been served through individual instruction with the same number of clinicians.

2. Clinician time is being employed more efficiently by virtue of the group structure. Lessons are planned in a more formal manner and with a group approach, but at the same time the needs of the individuals in the group are not neglected. The administration of any given therapy lesson, although formal, is approached with a view towards flexibility. There is less catering to individual idiosyncracies and less expenditure of time-solving problems of individual receptiveness. The individual who is temporarily unresponsive is temporarily by-passed, giving the lesson a greater efficiency ratio for the time expended.

3. The exposure of the cerebral palsied child to the group speech situation has a therapeutic effect on his tendency toward isolation and feeling of not belonging. Correctly planned activities in which the child participates both as an individual and as a partner do much to help him in his psychological adjustment. Awareness of speech as a meaningful tool of communication also is developed as an outgrowth of his participation in sharing activities.

4. The children who exhibit poor behavioral tendencies, or who have physical impediments that make their inclusion in group activity undesirable, are assisted in an individual therapy program, provided there is

sufficient evidence that the child is educable.

5. The emphasis on group instruction with severe speech cases is desirable for the training of professional therapists. Too many methods courses give attention to the theoretical and practical aspects of individual therapy with only a secondary acknowledgement and cursory examination of group theory and techniques. Clinical practice courses likewise tend to limit the student's experience mostly to individual therapy methods. As a result, the graduate correctionist often has only restricted knowledge of group techniques, and is unable to apply them effectively.

6. Planning a creditable program of group therapy with cerebral palsied children and administering it efficiently and effectively is one of the most challenging corrective teaching experiences the clinician will meet. Contrasted to individual therapy with the cerebral palsied, which often tends to encourage the clinician to be less demanding of himself in the creative aspects of materials preparation, less disciplined in the progressive planning of lesson activities, and more inclined to regard the lesson as a spontaneous experience both for himself and the patient, group therapy is rigidly demanding. Disciplining by nature, it becomes an excellent professional preparatory experience. The clinician literally becomes his own best critic. The response he receives from the group lesson brings his strengths and weaknesses sharply into focus. He is constantly pressed for the creation of new, unusual and imaginative materials of both visual and auditory nature. He must be alert to the actions and reactions of a number of children as the lesson progresses; his imagination is taxed to find new ways of keeping the group motivated and responsive. He must balance a friendly, winning attitude with poise, command of material, and the ability to discipline. His performance before the children must be faultless and thorough and at the same time flexible and appreciably spontaneous. To accomplish all of this successfully requires a willing attitude, aptitude, creative ability, and hard work; but the student clinician who has taught himself to perform effectively in these circumstances has undergone a learning experience from which he will profit immeasurably in his future career.

Group speech therapy at Hillside House has been carried out on a trial basis for more than two years with sufficient success to warrant its continuance as an integral part of the total rehabilitation program. The individual therapy program, maintained, as stated earlier, for those educable children who for one reason or another cannot be satisfactorily fitted into the group program, is administered by the same clinicians who conduct the group therapy program.

The second point of uniqueness in the speech rehabilitation program at Hillside House is the use of the clinicians as a team in group therapy. The clinical team is composed of two and often of three members, the third of whom is a cadet clinician who has advanced from the first step of exploratory training and is ready for observing and assisting in the speech instruction sessions. The other two clinicians are the team leader and assistant. Responsibility for the organization, planning, and administration of the team's portion of the therapy program rests with the team leader, who is usually a third or fourth semester clinician. The assistant, a sec-

ond or third semester clinician, actively participates in the preparation, instruction and evaluation phases of the work. The leader and assistant, in effect, work as the team in carrying out the planning of the semester's work. Each prepares his share of the lessons and the correlative activities in coordination with the other so that the direction and continuity of the program is assured. The individual lessons are usually planned together by these teammates, materials are shared, and the lesson is ready for administration by either of the team members. For all practical purposes there is only nominal difference between team leader and assistant, the two working in a democratic rather than an autocratic system. The third member of the team advances, usually the following semester, to assistant and at the same time the former assistant becomes the leader. By this process the continuity of the team is insured and necessary adjustments in regard to personality, attitude, or other individual differences have taken place.

The general rules specifying the manner in which a team functions are purposely kept flexible. The leader and assistant, for example, may prefer to alternate conducting the instruction sessions by periods or by days. If preferred, one may conduct all the instruction for a set period of time, then relinquish it to the other for a like period. Supervision insures that no one member dominates the instructing phase of the work. The teams are instructed that the leader and assistant share equally in an instructional capacity and that the third member, as a beginner, be given brief to longer opportunities to participate as an instructor as the semester progresses.

The team functions as a unit in additional ways in the lesson planning and administration. Audio-visual materials, which are used profusely in each therapy session for both the younger and older children, are prepared either as individual or as joint projects by the clinicians and become a part of the team's general stock of teaching aids. Stories that have been composed, games that have been originated, and play activities that have been devised are also shared by team members.

Since group therapy is the principal method employed in the speech rehabilitation program, the member of the team on non-teaching assignment and the cadet clinician are able to carry out associated activities prior to, during, and subsequent to any given session. The cadet clinician ordinarily is assigned the task of collecting the children and bringing them to the speech room. As the children are assembled, a brief orientation period is undertaken in which both the group leader and assistant participate. The clinicians talk to the children individually, seeking to establish a receptive attitude toward the lesson and to control any individual behavioral tendencies that may have an adverse effect on the group.

The second part of the corrective session is primarily physical therapy, combining, whenever possible, physical activity with sound formation. During this period physical activities relating to relaxation, breath control, and more refined muscular control of lips, jaw, and tongue are undertaken. The teacher and assistant coordinate this phase of the work with the teacher assuming responsibility for controlling the group as a whole and for motivating the children to attempt the desired responses. The assistant acts as an individual counselor helping the children by moto-kines-

thetic and visual means to accomplish the responses. The cadet clinician observes the activity of both the teacher and assistant, and after a period of indoctrination, undertakes part of the work under the supervision of the other team members.

The last general phase of a therapy session includes sound building, word building, and vocabulary application in situation experiences. The teacher administrates this phase of the work by himself. Visual, auditory, and kinesthetic techniques are used to induce the desired responses. Story and play activities are used extensively. A great deal of emphasis is placed on the situation-experience activity in order to teach the child not only how to use, but the importance of using speech as a communicative tool. These exercises, which the children experience through motion pictures, slides or other visual aids, or through actual life experiences, are set up as group activity and involve sharing on the part of all children.

This situation-experience is most valuable training for the cerebral palsied, as it is for all handicapped children. Speech therapy is frequently directed too simply toward improving the child's ability to form new sounds, to correct defective ones, and finally to apply these corrections in words and continuous speech. Teaching the handicapped child to use speech to advantage in accordance with his maximum potentiality, to improve his social abilities and encourage him away from a preference for isolation is often a by-product rather than the end-product of speech rehabilitation. In group therapy situation-exercises the correctionist is able to develop a long range approach that not only helps create in the handicapped child an awareness of speech as a usable communicative tool, but also gives him some real experiences in which he shares speech meaningfully with others in his group. By careful planning of life-situation-exercises as a group therapy speech exercise, the correctionists can create a desire on the part of the child to use speech socially in other situations. This is one of the marked advantages of group over individual therapy.

While the clinician-teacher is administering the vocabulary building portion of the lesson, the assistant is observing and recording the reaction of the children and noting individual progress. These reports are incorporated as progress records in each child's permanent file and become, for future clinicians, a progressive account of the child's speech rehabilitation. A complete study of the child is found in these reports and much of the trial and error that accompanies a new clinician's orientation to a particular case is eliminated.

One of the most valuable concomitances of the clinical team idea is the evaluation which follows each therapy session. During this period the team members write the daily progress report on each child. Observations of both teacher and assistant are noted and the general conduct of the therapy session is discussed freely in relation to problems for immediate or future consideration and for decision about techniques to be employed or approaches to be tried in subsequent therapy sessions. The assistant also passes on to the teacher his judgment of the children's reaction to the lesson in general, to particular techniques employed, or to materials used. This evaluation session has for its purpose the exploration of strengths and weaknesses in the content and administration of the lesson, and in the handling

of the children. Supervisory personnel observe lessons frequently and are present for a representative number of evaluation sessions.

Summary

Efforts on the part of supervisors at Hillsdale House and Santa Barbara College speech correction professors to develop a speech rehabilitation program that would benefit a maximum number of the educable handicapped children at the institution and that would at the same time offer a challenging teaching and learning experience to students preparing for a professional career in speech correction instigated the relatively unique program described in these pages. In summary there are several observations that may be made regarding group therapy and the use of the clinical team in the administration of this program:

1. The most effective management and progress was achieved with a group situation of four to five children.

2. The presence of one highly responsive child in the group tended to encourage general responsiveness.

3. Children negatively inclined toward individual instruction had greater behavioral stability with a group.

4. The best reactions to group instruction were achieved with spastic children. Athetoid children responded well but overstimulation frequently resulted in lapses in speech control. Considerable time was spent teaching athetoids to control response to stimulation.

5. Older children responded more readily in the groups than did younger children. Younger children, however, maintained more interest and tired less readily in group therapy than in individual therapy.

Regarding the attitude of the student clinicians to the clinical team concept, the following observations may be made:

1. The student clinical teams were deeply concerned with their responsibility and took unusual pride in their accomplishments.

2. The student clinicians felt that the team approach represented a greater challenge than did individual work.

3. The student clinicians enjoyed the prestige and responsibility of group leadership.

4. The student clinicians felt more secure in their work and more assured and confident in their teaching as a result of the step progress to team leadership.

5. The student clinicians felt that the demands of group therapy and team affiliation were much more severe than were the demands of individual therapy.

No inference is made that the group therapy method employing the clinical team represents an approach to the correction of cerebral palsied speech that labels individual training methods as old-fashioned. Three things, however, are suggested: 1. That the vital problem of extending speech rehabilitation opportunities to a greater number of cerebral palsied children can be partly solved by training future correctionists to make more effective use of group methods. 2. That the cerebral palsied child will profit as extensively from the experience of group rehabilitation as he will from individual speech instruction. 3. That the student clinician undergoing basic professional training in speech correction will be more proficient as a result of working in a group therapy-clinical team type of program.

The Usefulness Of The Binaural Hearing Aid

Raymond Carhart

The development of ultra-miniature hearing aids has greatly increased the practicality of specifying their binaural use. The clinician must, in consequence, be alert to the advantages and limitations of the binaural system. He must have clearly defined criteria for determining when such an arrangement brings superior benefit to the hard-of-hearing patient.

A wearable binaural device employs two complete hearing aids, one for each ear. Since the sound patterns striking the microphones of the two hearing aids are not identical, the sequence of excitatory events reaching one ear is not only independent of, but also different from, the sequence reaching the other ear. It is this fact which gives the binaural system its potential for sharp superiority over either a monaural system or an arrangement where one amplifier supplies stimuli to both ears.

The world of sound assumes full three-dimensionality only when the capacity for spatial localization can be used to its fullest. Normal ability to distinguish sounds of biological and social importance in unfavorable listening situations requires that two independent sequences of neural events, one from each inner ear, activate the central nervous system. Under such circumstances sources of sound are more effectively localized than when a single train of neural events is present or when the two trains are identical. When independent sequences of neural events are present, the listener can distinguish more effectively among competing sounds arising from different points in his environment. This capacity allows him to hold his attention on the stimulus which is at the moment important even though the situation is, acoustically, quite chaotic. In other words, foreground and background relationships can be more effectively crystallized when three-dimensionality is preserved in the auditory environment.

As viewed by the physicist, the capacity to localize sound depends on the fact that the two ears are separated by the head. In consequence, the listener achieves an auditory triangulation on every source of sound. The specifics of this triangulation vary precisely with the location of the source in relation to the listener. The situation is illustrated schematically in Figure 1. The two ears will receive identical acoustical excitation only when the source is in the midline sagittal plane, as exemplified by Position A in the figure. Any other

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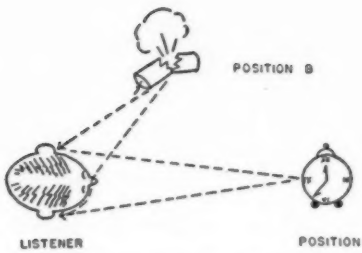

FIGURE 1. Schematic diagram illustrating auditory triangulation on sound sources.

location of the source, for example Position B, produces bilaterally dissimilar acoustic excitation because the paths to the two ears are no longer the same. Physically, the two stimuli must now be different in one or more of the following dimensions: (1) *intensity*, which will be affected by the distance from the source and the diffraction effect of the head; (2) *time of arrival* (*phase*), which will depend on relative distance from the source; and (3) *spectral composition*, which will be determined by the diffraction effects of the head.

Experimental psychology has long since demonstrated the relationships which exist between the physical dimensions of a pure tone and the precision with which the source of this tone can be identified (*4*). The rules for localization of complex sounds and the role of localization in everyday listening are less fully defined by precise research. However, the contribution of binaural reception to ordinary adjustment is clearly apparent to the alert observer. Koenig (*2*), for example, reported after he controlled listening situations systematically that a hopeless jumble resulted when listening with one pickup whenever several conversations were going on simultaneously. In contrast, he states, 'With the binaural system, each party could be distinguished separately and it was fairly easy to understand speech under conditions of extremely high room noise . . .' Finally, Koenig noted that very intense sounds were more tolerable when heard with both ears. This 'squelch' effect appears to be a further advantage of a binaural system.

Years ago both theoretical considerations and everyday observation led to the belief that binaural hearing aids should bring added benefit to many patients with auditory impairment. The prime requisite, according to this view, was that the impairment be one where bilateral stimulation was still possible. This belief, for example, lay back of the interest shown at the Psycho-Acoustic Laboratory, over a decade ago, in developing a wearable instrument containing two complete amplifying channels. Concurrently, both in military centers for aural rehabilitation and in civilian practice,

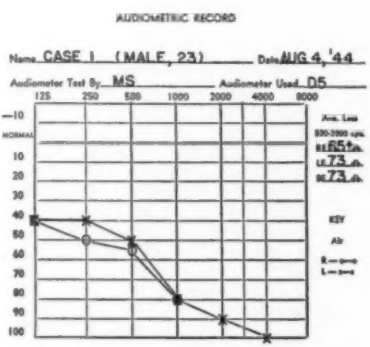

FIGURE 2. Pure tone audiogram of blind case who benefited from two separate hearing aids worn on the body.

sporadic attempts were being made to equip patients with two conventional aids. These patients were urged to employ dual amplification throughout the day. In such instances, the aids were selected from among the instruments currently available on the commercial market.

Such attempts almost always failed, even though it could be clearly demonstrated that auditory efficiency was enhanced when two aids were used. Most wearers felt that the disadvantage of carrying two large aids on the chest outweighed the additional benefit in hearing which was gained. Thus, the only patients who could be induced to tolerate binaural fittings were those with particular need for maximum auditory efficiency.

The case whose audiogram is shown in Figure 2 is one such individual. He was supplied with a binaural hearing aid system in 1944. This man had lost his sight and much of his hearing in an explosion which occurred some months earlier. His unaided binaural loss for speech, as determined with spondaic words, was 66 db. This result was reasonable in view of the configuration of his pure tone audiogram. His residual loss while wearing a single instrument was 24 db for the left ear and 22 db for the right ear. His residual loss was only 10 db while wearing the two instruments at the same time.[1] Moreover, his ability to follow group conversations and to localize environmental sounds was infinitely better with two instruments. While wearing only one, for example, he could tell the direction a car was travelling only after it had passed. By contrast, with two aids he could determine, at 150 feet, the direction from which it was approaching. It is not necessary to emphasize the survival value which differences of this type have for a blind man. Needless to say, the patient wore both aids.

Not only did the clinical population reject early attempts to employ binaural hearing aids, but there was no appreciable increase in the acceptance of such aids as long as instruments had to be worn on the body. Notable reductions in size were achieved by the industry as years passed. One must therefore doubt whether the cumbersomeness of early instruments was the prime reason for the clinical failure of the binaural hearing aid. A more reasonable conclusion seems to be that there is a limitation to any binaural system which requires that the two aids be placed on the torso. The reason is probably to be found in the fact that no practical arrangement of the two instruments on the body can place them in a sound field that reproduces the acoustic relations which exist at the two ears. For one thing, the general patterns of sound diffraction induced by the body are unlike those produced by the head. Secondly, the response of the hearing aid itself is changed by the so-called 'body baffle' effect (*3*). This change is unpredictable because it depends on the dimensions of the instrument, upon the exact position where it is being worn and upon the relative location of the sound source. In the third place, as long as practical considerations require that the two aids

[1]One of the frequently observed benefits of binaural hearing aids is a substantial increase in the 'effective gain' which the patient achieves with two instruments. The present case illustrates this phenomenon. His improvement is greater than mere stimulation of a second ear would lead one to expect from our knowledge of binaural summation by normal hearers.

be worn on the front of the body, the contrast in acoustic patterns will be less than if full lateral positioning of the instruments were employed. Finally, if it were practical to employ full lateral positioning, the instruments would then be separated by a much greater distance than the width of the head.

The foregoing limitations were overcome as soon as hearing aids were reduced in size to the degree where it became feasible to wear them at ear level. Today many instruments of this type are available. Some of these instruments attach to the frames of glasses, others are cradled above and behind the auricle, while still others slip into the ear canal. They possess one critical feature in common: namely, the microphone which picks up the sound is in the immediate vicinity of the ear which the instrument activates. Two acoustic advantages are consequently achieved.[2] First, the microphone now receives sound patterns which have been modified by the diffraction effects of the head rather than of the body. Second, when two units are employed to achieve binaural reception, their microphones constitute pick-up points roughly equivalent to the two ears in their separation and their other physical relations. In consequence, many hard-of-hearing persons are now finding the practical benefits of the binaural system great enough both to overcome reticence against wearing two aids and to compensate for the extra cost of the second instrument. However, several limitations still restrict the usefulness of binaural hearing aids.

The first restriction is that instruments which can be easily worn at ear level are so small that they must be simple in construction. Circuitry is uncomplicated. Controllable variability of frequency response and of other performance features is not great. Behavioral characteristics are dictated in part by the rigor of space restrictions. Consequently, ear level instruments serve best where the need is for straightforward amplification rather than for special electro-acoustic features.

Secondly, the clinician should remember that some of today's ultra-miniature hearing aids possess unfortunate mechanical features, such as relatively exposed batteries, general flimsiness, awkward design of the volume control, or uncomfortableness. These factors need to be kept in mind when advising patients.

In the third place, the effective gain of the instrument is limited by the onset of feedback. In other words, usable amplification cannot exceed the level at which the instrument begins to squeal because of self-excitation. Such feedback will ordinarily be acoustical. Acoustical feedback occurs more easily as the microphone is brought into closer proximity to the receiver and as sound radiating back to the microphone increases. The amount of such radiation often depends upon the snugness with which the earpiece fits into the auditory canal. However, excessive sound may be radiated directly from a poorly designed receiver. Occasionally, electrical feedback may be encountered. The important point is that, in binaural use, the ear level hearing aid is capable of only moderate amounts of amplification before feedback is initiated.

Bearing the foregoing factors in

[2] A number of other benefits are also achieved by the various types of ear level instrument. Notable among these benefits are freedom from clothing noise and elimination of receiver cords.

mind, it is easy to see that there are many cases for whom the wearable binaural system is unsuitable. For one thing, the limitations on gain preclude effective use of the ear level version by patients with severe losses.[3] Again, it is difficult to achieve bilateral balance through binaural amplification when the two ears have highly asymmetrical impairments. The same is true when the degree of loss is quite different in the two ears.

Conversely, many cases who exhibit moderate losses with reasonable bilateral balance receive benefits from a binaural system which a monaural aid cannot match. These benefits show themselves (1) through increased ability to cope with noisy situations, (2) through greater effective gain when the reception of faint sounds is critical, and (3) through a marked improvement in the precision of auditory orientation when the environment is complex. The child for whom these benefits can be achieved has both educational progress and social adjustment facilitated. The adult who experiences these benefits finds everyday life simplified. In extreme instances, the binaural system may effect dramatic restoration in efficiency. One illustration is that of a physician who received real improvement from a monaural aid. However, he was unable to find a model which allowed him to conduct his professional activities with any sense of confidence. He has been using a binaural system for the past two years. He is enthusiastic about the ease with which he can now deal with his patients, and he would not consider reverting to a single instrument.

The wearable binaural systems of today do more than improve efficiency for many patients who can achieve substantial benefit from a monaural aid. They also make the use of amplification feasible for a large group of cases who do not obtain practical help from single-channel instruments. This group consists of people with mild losses whose two ears show reasonable bilateral equivalence of impairment. Many of these people find a monaural system more distracting than helpful, except under the most uncomplicated listening situations. Yet these people often have the need to hear relatively faint material in less favorable, albeit not really noisy, circumstances. The enhanced capacity to establish figure-ground relationship which a binaural system allows often means successful hearing where otherwise difficulty and puzzlement would exist. The business executive with mild loss is one example. He often finds it much easier, with a binaural system, to follow the quick transitions from one speaker to another which characterize group conferences, directors' meetings, and the like. Similarly, the lawyer, the librarian, the teacher and others may have their efficiency enhanced while performing professional tasks. Again, binaural hearing aids can provide significant benefit for many elderly persons whose mild presbycusic losses are not similarly helped by monaural aids. This benefit is experienced in group conversations, lectures, and the like. Remember that the phonemic regression which often accompanies presbycusis gives rise to auditory con-

[3]This comment must not be misunderstood. As Dr. Kenneth Day has so effectively emphasized at various times, persons with extreme hearing loss do gain added benefit from a binaural system. Such persons must wear the aids on the body, however, and the problem of finding an adequate combination is harder to solve.

fusions. These confusions are multiplied by monaural amplification because such amplification disturbs the inter-aural balance in acoustic clues so necessary for the maintenance of the proper differentiation between foreground and background sounds. If an elderly person of this type is to benefit from amplification in those quieter situations where he needs it, he must be given a hearing aid which does not trigger chaos in auditory perception. This requirement can often be met by a binaural instrument with good response characteristics.

The foregoing comments are generalizations. Unfortunately, awareness that wearable binaural systems can be of great help to many patients does not give the clinician the guidelines he needs in order to make specific decisions regarding the usefulness of such a system for a particular patient. Such decisions require two additional developments.

First, essential criteria must be clarified through research. Clinical audiologists lack the knowledge necessary for intelligent pre-judgment as to each patient's prospects for practical benefit from a binaural aid. Fortunately, some investigations in this area are under way, and the number can be expected to increase. The point is that substantial amounts of research must be completed before the field can hope to codify the features which distinguish those cases who will have special problems in use of binaural fittings from those superficially similar cases who use such fittings easily. It is necessary to learn, for example, what factors are involved when a patient finds that inserting earpieces bilaterally makes his own speech intolerable, whereas it remains acceptable when a monaural aid is worn. Such a case does not take easily to a binaural instrument even after an extensive adjustment period, so that initial identification of his problems and insightfull prognosis as to its resistiveness are essential. For comparable reasons, the clinician must be able to recognize the person whose tolerance for strong sounds is not improved by a binaural system, as well as the person who is particularly susceptible to subtle imperfections in the electro-acoustic performance of wearable instruments. The observant clinician who attempts to use binaural fittings knows that these difficulties are among those which appear in a clinical population. The research task is to catalogue the full range of difficulties, to codify their identifying features and to ascertain the clinical management which best copes with each.

Secondly, since the final proof of a hearing aid's adequacy for a patient is the performance he achieves with it, the clinician must be able to gauge this performance directly. To this end, methods for appropriately testing a patient's efficiency with a binaural system must be refined and standardized. These methods must incorporate sufficient binaural acoustic complexity so as to simulate the difficult listening situations of everyday life.

Two procedures which are currently used to assess efficiency of hearing aids fail to possess the rigor necessary to satisfy the foregoing requirement. The first one is the informal demonstration of instruments. Such an approach is too causual to give the information which is needed. Moreover, it lends itself either to conscious manipulation of conditions or to unconscious variation in the listening task, so that the relative merits of various fittings may be obscured. Finally, the listening task is usually kept so simple in demonstration situations

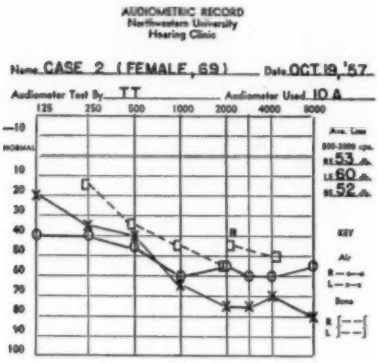

FIGURE 3. Pure tone audiogram of presbycusic case who achieved added discriminatory efficiency with an ear-level binaural hearing aid.

that the results are meaningless as an indication of the performance the user may expect when auditory demands are exacting.

The second procedure which is inadequate for evaluating the binaural hearing aid is the formalized sound-field test administered through equipment with a single output channel. Such equipment is in widespread use because it is acceptable for assessing monaural instruments. Its limitation for use with binaural aids rests on the fact that competing signals cannot be initiated at different points in space if these signals must all travel through a common output stage. Obviously, the advantages of localization which binaural reception brings cannot be demonstrated when competing signals are all arising from the same spot. In recognition of this limitation, audiological facilities throughout the country are being improved either by adding second and fully independent channels to existing test instruments or by replacing these instruments with multi-channel systems.

The full clinical potential of such multi-channel equipment cannot be achieved, however, unless the tests administered through it are more complex than usually used heretofore in evaluation of hearing aids.[4] Such tests are in process of perfection in various centers, and standardized versions worthy of wide acceptance should emerge.

The fundamental requisite of a good test is that it explores the patient's capacity to perceive foreground and background relationships in the acoustic environment while wearing a binaural hearing aid. Thus, competing signals must be the critical feature of whatever new evaluative procedures are developed. Moreover, these signals must enter the test field from different points in space. One obvious version, which has been used by Markle,[5] is the measurement of discrimination for PB-50 materials when these are presented in noise. To achieve a standardized test of this type, it is necessary, of course, to specify the presentation level of the PB lists, the presentation level of the competing noise, the acoustic spectrum of the noise, and the physical relationships between sound sources and listener position. A second technique, which Wright has been refining at Northwestern University, is

[4]Some of the tests which are currently employed, such as the measurement of aided threshold in quiet, will continue to be valuable. The point is that such tests cannot yield all the information requisite for evaluating binaural systems. Hence, since clinical procedures must be as brief as practical, appropriate substitution of new tests for current procedures is essential.

[5]This was reported at the annual convention of the American Speech and Hearing Association, November, 1956.

TABLE 1. Comparative performance with three monaural and two binaural hearing aids exhibited by patient with moderate hearing loss.

	Speech Reception Loss	*Residual Loss at Use Gain*	*Residual Loss at Full Volume*	*PB at + 25 in Quiet*	*PB at + 25 in Noise*
Unaided right ear	52 db	———	———	80%	Not tested
Unaided left ear	58 db	———	———	48%	Not tested
Unaided binaural	48 db	———	———	94%	62%
Instrument 1 right ear	———	14 db	10 db	76%	8%
Instrument 2 right ear	———	14 db	10 db	82%	32%
Instrument 3 right ear	———	6 db	2 db	82%	24%
Instrument 2 binaural	———	18 db	10 db	90%	52%
Instrument 4 binaural	———	18 db	18 db	78%	44%

to bombard the patients with simultaneous samples of highly similar speech and to require that he attend to one of the competing trains of test items. A third alternative is one wherein the test material competes with itself, as occurs in everyday situations where reverberation and reflection of sound is severe. One simple procedure would be to reproduce each test item twice with only a small time delay between reproductions. This procedure may prove particularly critical in differentiating ability to follow connected speech with various hearing aid combinations. In any event, the tests which will emerge as clinically valuable in defining a patient's binaural efficiency will be those which are realistic in measuring his aided perceptual capacity under favorable acoustic circumstances.

Although procedures for clinical selection of binaural hearing aids must undergo refinement and validation, the empirical adaptation of contemporary evaluative methods is proving useful both in guiding patients and in exemplifying some of the clinical relationships to be anticipated.

Consider, as an illustration, the case whose configurations of loss for pure tones are presented in Figure 3. This individual is a woman of 69 years with a predominantly sensori-neural loss of the presbycusic variety. Her unaided scores by speech audiometry and her performance with both monaural and binaural fittings are reported in Table 1. Note that her speech reception thresholds, both binaurally and for each ear separately, were close to the levels which her responses for pure tones would lead one to expect. Note furthermore that her unaided discrimination score for PB-50 words was much better for the right ear (80%) than for the left (48%).[6] Interestingly, her binaural

[6] An earlier test at another audiological center had revealed a confirmatory and marked discrepancy in the PB scores for the two ears.

discrimination score (94%) was substantially improved over that for the right ear. Her binaural score was sharply reduced (62%) in the presence of 'speech spectrum' noise. Here the S/N ratio was 0 db.

The patient was tested with three monaural fittings: (1) her own aid, (2) one channel of an eye-glass type binaural aid, and (3) a single channel unit which has proved especially good for many cases. All three activated the right ear. One observes the following as the most pertinent features of the results. First, all three aids yielded good effective gain, bettering the 15 db residual loss which is commonly considered the boundary of full clinical adequacy in sensitivity. (*1*). Second, all three instruments yielded discrimination scores in quiet which were essentially equivalent (within ±6%) to the unaided score for the right ear. Lastly, however, the three aided discrimination scores in noise were sharply inferior to the comparable score for unaided ears.[7]

Turning now to the results for binaural fittings, one observes that the performances for the two systems tested were substantially different from one another. Instrument 4 showed the poorest residual loss (18 db) obtained during the examination. Discrimination in quiet (78%) was not better than with monaural fittings, while discrimination in noise (44%) was intermediate between that for monaural fittings and unaided binaural discrimination in noise. In contrast, instrument 2, when used as a binaural system, yielded fine discrimination in quiet (90%). This result was provocatively better than any monaural score and was almost as good as the binaural unaided score (94%). Again, the score for discrimination in noise (52%) approached the analogous unaided score (62%), and was dramatically superior to the performance evidenced in noise with any monaural fitting. Thus, although residual loss was not reduced by instrument 2 (worn binaurally), examination of the test results leads one to the belief that this fitting holds special advantage for the patient under consideration. With it she was able to retain added clarity in discrimination and to resist the encroachments of competing background sounds more effectively than with monaural fittings. Stated differently, with this fitting the patient was able to approximate her unaided binaural performance, at least insofar as represented by the conditions of the evaluative procedure. The presumption is that this advantage will manifest itself in various ways in everyday listening situations.

Granting that such a presumption needs validation, it nonetheless stands as the hypothesis which cannot be ignored in the clinical management of the patient unless it be demonstrated as untenable. It is for this reason that the use of insightful empirical procedures for assessing performance with various instruments should be an essential part of any programs giving thoughtful guidance in the selection of hearing aids. To be sure, techniques must be refined and principles must be clarified so as to achieve maximal clinical effectiveness. One cannot, however, dismiss as clinically unim-

[7]The test equipment was a Grason-Stadler 162 speech audiometer equipped with two auxiliary amplifiers and loudspeakers in such manner as to allow 'speech spectrum' noise to be administered through one speaker and PB materials through the other. The words were presented by live-voice. This manner of testing was used for all the aided measures of PB discrimination in noise.

portant those sharp differences in performance which many a patient reveals when carried through the procedures of hearing aid evaluation simply because the significances of the differences are not fully understood. Similarly, one cannot postpone clinical responsibilities until research has given its definitive answers. One must, in the meantime, employ those empirical techniques which experience and reason favor. This principle can and should be applied, at the moment, to the problem of evaluating and selecting binaural hearing aids.

Summary

The usefulness of the binaural hearing aid will be more fully understood as research data and clinical experience accumulate. However, progress of critical importance has already occurred. Most notable is the development of instruments which can be worn approximately at ear level. Localizational skill can consequently be utilized by the wearer of a binaural aid. This skill allows him more easily to relegate momentarily unimportant sounds to the backgrounds of attention. However, improved equipment and new tests are needed if one is to guide patients most adequately regarding their individual prospects for practical success with a wearable binaural aid. Meanwhile, empirical trial has shown that present-day instruments can, through binaural fittings, bring enough added improvement to many persons with mild and with moderate losses so that their problems in everyday hearing are greatly simplified.

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Clinical Notes

As a result of numerous suggestions from ASHA members that space be provided in the JSHD for miscellaneous items of information which do not properly fall into the category of 'articles,' a column has been established under the title of *Clinical Notes*. Suggested material for this column might include case histories, possibly with a follow up later; new uses for special materials, devices, instruments, or equipment; brief articles on therapy which might more appropriately fall into the category of 'long notes,' brief messages containing information on clinical matters which the authors feel might be of interest and value to the membership as a whole, ethical practice, and clinical certification.

Esther L. Herbert (M.A., State University of Iowa, 1942), who is Coordinator of Secondary School Speech Correction for Los Angeles City Schools, will edit this column; it is hoped that members will contribute their ideas and share their insights to the mutual benefit of all. Please send suggestions or contributions to:

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A Note On Voice Quality In Emotional Deafness

With few exceptions the voice of a deaf or severely hard of hearing individual reflects the presence of the hearing defect. This characteristic quality has sometimes been described as 'monotonous' or 'flat.' When children are examined to determine whether or not their lack of speech is due to a hearing loss, it is the author's opinion that at least as much weight should be given to the quality of the voice as to the audiometric response. In most instances, if the child can utter one or two words, this is enough to tell at least whether the child is severely hard of hearing or only mildly so. That there is a possibility of error in certain cases when reliance is placed on this method of diagnosis is the theme for this presentation.

Hearing impairments, when not known to be the result of organic sensory injury, have been designated as 'hysterical,' 'psychogenic' or as 'psychic deafness.' The hearing loss is usually pictured as 'a wall' which serves to isolate the patient from the internal and external verbal stimulation he fears. In such cases is usually also found the characteristic dull, flat, monotonous voice quality which might misleadingly suggest the presence of organic damage. In other cases of emotional deafness we do not find this characteristic voice quality. In these cases the disorder cannot be pictured as a 'protective wall.' The speech of oneself and of others will be allowed to penetrate through the periphery but it is not *understood* by the patient. Since, however, the sounds are *perceived* they can be utilized to monitor the loudness and quality of the

voice which then sounds natural to the listener. Thus, in such cases where the patient complains of a severe deafness, the natural quality of the voice should suggest to us that the patient is hearing adequately at least some of the time, and if this be the case, we cannot view this as a case of true organic deafness. Here the voice quality is a more crucial indicator of hearing loss than is the audiometric response.

Thus, an awareness of the relationship between hearing deficit and voice quality is useful in differential diagnoses. The following case history is presented as an illustration of the dynamic relationship between voice quality and hearing loss.

Mrs. R. B., age 34, was referred for hearing rehabilitation by an otologist. Ten years previously, just prior to her husband's return from army service, she awoke one morning to find herself deaf. This lasted for two days and then normal hearing returned. Five years after this she began gradually to lose her hearing. Following a series of various kinds of treatments, some reasonable, others not, a hearing aid was prescribed. This helped for about one year and then became useless. The referring otologist diagnosed her problem as 'psychogenic' and referred her for counseling.

When she appeared for the first meeting she wore her aid, although it did not seem to help her any. Her voice was flat and metallic sounding. She relied on lip reading. I clapped my hands sharply next to each ear and she said she could not hear me. But, interestingly, she told me she could hear my pencil as I took notes. During the therapy she became gradually better able to hear people as the reasons for her fears of them were discussed. She would have more trouble hearing me during our meetings than other people, and would block completely when discussing particular areas of emotional concern. The quality of her voice as she made her first statements at each meeting would reveal whether she had been hearing in the days previous. For the first two months of our meetings her voice retained that characteristic flat, metallic, dull quality indicating that her deafness was serving to prevent sounds from entering her ear. Later in the therapy it appeared that one of the reasons for her hearing problem had to do with her fear of becoming pregnant, and she had, in some way, associated her ears with her sexual organs, and by not letting sound penetrate she felt she was preventing herself becoming pregnant.

As the fears underlying her fear of sexual activity were discussed and dissolved, her voice became natural, indicating that at least now she would let the sound penetrate her ears. Throughout the therapy the quality of her voice would immediately indicate the status of her hearing.

While it is important to consider voice quality as a significant index in the diagnosis of hearing difficulty, this criterion must be used with caution, since in certain types of functional deafness the patient loses the ability to monitor his own voice and its quality cannot be differentiated from that resulting from true organic hearing deficiency. Two major types of emotional deafness have been discussed. In the first, it is as if the patient were isolated behind the 'wall of deafness.' The voice cannot be differentiated from that of an organically deaf individual. In the second type, there is a resemblance to the auditory aphasic, that is, speech is heard but is not understood; here the patient's voice quality is monitored and sounds natural.

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A Linguist Looks At Aphasia In Children

Alfred A. Strauss

Ernest N. McCarus

The purpose of this paper is to draw attention to the possible contribution of linguistic methods to the solution of problems in children's aphasia. The writers have consciously omitted discussion of the literature; however, the following considerations are basic.

The term 'children's aphasia' is a general rubric for language disturbances of any kind (in contrast to speech disturbances) which exist in a growing child during the acquisition of language; we prefer this term to the term, 'language retardation,' which has been proposed by some research workers. There is a definite difference between the aphasia of a child, a growing organism acquiring language, and the aphasia of an adult, a person who has lost the full capacity of language. The aphasia of a child has been called oligophasia by Strauss (7) to emphasize the qualitative difference between the two types of aphasia.

Aphasia in children is, in the majority of cases, and possibly in all cases, due to injury to the brain. An aphasic child may, and usually does, show other psychological deficiencies typically found in brain-injured children. The psychological deficit of brain-injured children is to a large extent conspicuous in their perception, both visual and auditory. It is then essential that cognizance be taken of the relationship between language and perception in the normal child. We would say that the growing child's mental activity is foremost a perceptual one. Research in the field of mental development in children suggests that the change from an organism which is largely a perceptual being to one which is primarily a reasoning or conceptual organism takes place between the ages of eight and ten. Thus, the development of a child damaged in the ability to acquire language might still follow this general genetic pattern. We believe that Piaget's (4) concept of animistic language or animistic thinking in children below eight years of age is probably incorrect; further, language in children below eight years of age, since it is a perceptual language, can-

The late Alfred A. Strauss (M.D., University of Heidelberg, 1922) was Director of the Cove Schools for Brain-Injured Children, Racine, Wisconsin, and Evanston, Illinois. Ernest N. McCarus (Ph.D., University of Michigan, 1956) is Assistant Professor of Near Eastern Studies, University of Michigan. This preliminary discussion is from the Research Unit of the Cove Schools for Brain-Injured Children. The American Speech and Hearing Association notes with regret the death of Dr. Strauss, who was internationally known as a leader in the treatment of brain-injured children.

not be compared with the language of so-called 'primitive' peoples. However, knowledge of the development of language in both adults and children may give us some understanding of that which is specific for the psychological activity called language. Qualitative differences which may exist between the growing perfection of language in children and the growing perfection of language in 'primitive' peoples may be observed through linguistic studies.

While language is man's chief means of communication, non-verbal means of expression, such as gestures and mimicking, also bear a significant functional burden. When it is considered that the foundations of personality and human relations are for the most part established while the organism is still developmentally in the perceptual period, it becomes obvious how important a role this nonverbal behavior must play in child development. Anthropologists and linguists have become increasingly interested in this aspect of social interrelating; they have devised systems whereby gestures might be described and analyzed (*1*) or whereby verbal and non-verbal behavior can be analyzed by a single unified methodology (*5*). It is believed that linguistics, with its well-developed methodologies and procedures, can make valuable contributions to the analysis of human behavior.

The Nature of Children's Language

In studying children's language, the following points must be made: First, anatomically speaking, there are no 'organs of speech.' Each organ or part of the anatomy used in the production of speech has a primary non-linguistic function, with language production secondary. The child, therefore, must acquire the techniques of using these organs for language.

Second, babbling and echolalia are necessary training processes preceding the acquisition of language. Babbling is the vocal exercising and conditioning of muscles for physiological (non-speech) functions. All children, even deaf ones, go through a babbling stage. Children of all language backgrounds babble the same sounds, many of these are sounds which they have not heard in their environment and which they will not need in learning the language of their environment.

Echolalia is the meaningless echoic repetition and imitation of sound combinations produced by the child itself or heard from its environment. It is preliminary to the selection of those language signs used in the culture in which the child will live. Although all children babble, not all go through a period of echolalia. Many aphasic children are for a short time echolalic and parents often report that their children at one time spoke a few 'words' quite precisely, but later lost all speech.

These pre-language stages constitute a period of motor exercise, auditory inventory taking and checking with the environment on which sounds to 'retain' for future use.

Children normally develop language between the ages of one and three. However, while children's language fits the linguist's definition of language—'a system of arbitrary vocal symbols by which members of a social group cooperate and interact' (*8*)—it differs from the language of adults in two respects.

1. The child's earliest linguistic expression is a matter of naming and labeling. Basically a perceptual rather

than a conceptual organism, the child verbalizes his percepts, attaching verbal labels to his activities in order to retain them. Thus, while language implies a symbolic function in adults, children's language is primarily a *signaling* rather than a *symbolizing* activity. A five or six-year-old child may begin to use symbols at random, but this does not become a generalized pattern until later. The child uses his language labels for the recording of perceptual experiences.

2. The principal function of adult language is communication. But communication is best possible when there is a potential flow of information in either direction. With children, the flow of information is often in one direction only and communication in the adult sense is not attained. Piaget (*4*) tells of children of four and five years of age playing together, each child talking to himself. At this stage, the child is primarily interested in himself and in his own percepts.

Thus, children's language is a 'relief' language in that it provides relief for anxiety when a desired object is not present. It is language on a perceptual level, serving the limited needs and pleasures of the child, rather than serving primarily as a vehicle for communication in the adult sense. The infant normally develops auditory perception subsequent to visual perception; thus, children's language is the addition of auditory perception to visual perception. It should be stressed that babbling and echolalic behavior in children are pre-language motor exercise. While the historical origin of language probably began with the imperative form for purposes of communication (*6*), the development of language in a child in our culture starts with the noun, to fix his percept of the object.

The Contribution of Linguistics to the Treatment of Aphasia in Children

The linguist analyzes speech phenomena as parts of an over-all structure or system of patterns. Thus norms for a given language, or for children's language in contrast to adult language, can be established and deviations from them can be meaningfully observed. In this connection it is worth noting that interest in the nature and structure of children's language as opposed to adult language is rapidly growing among linguists today (*3*).

As linguistic behavior reflects the personality of the speaker, insight into linguistic behavior may provide insight as well into the problems of aphasia. For example, correct pronunciation of a language involves a process of selection, while correct syntax involves a process of arrangement. Thus, the nature of the language impairment may be of significance in the diagnosis of aphasia.

In correcting language disorders according to linguistic principles it would be necessary to proceed according to a schedule of priorities of language items. The vocabulary, grammatical features, *etc.*, to be taught should not be chosen at random, but according to a priority based on an analysis of the language in question. The linguist can outline the functional load of the various features of the language. This procedure could possibly answer the questions: How much language need be restored? Which items can be dispensed with without limiting the expressive range of the language? Which items should be taught first?

The linguist can make a direct contribution as well in the setting up of

rehabilitation techniques. Just as an accident victim may need prosthetic devices to retrain or replace a damaged limb, it is possible to use an artificial aid in retraining for aphasic difficulties. For example, English generally uses the process of suffixation to distinguish the plural noun from the singular. If it is necessary to retrain an aphasic in the formation of the plural of nouns, a device found in some language other than English, such as reduplication, prefixation, change in pitch or tone, *etc.*, might be used as a prosthetic device, either as a temporary crutch or as a permanent substitution.

The Contribution of the Study of Aphasia in Children to Linguistics

Studies in aphasia in adults and children may shed significant light on the general nature and universal characteristics of language. Some fields and aspects of linguistic research which might particularly benefit are: 1. semantics (some aphasics substitute one word for another, as 'dead' for 'black') (2); 2. redundancy (some aphasics show a tendency to use the bare minimum of words and morphemes instead of phrases); 3. phonological change (one significant feature of adult aphasic language deterioration is that the most recently learned items are the first to be lost); 4. language learning processes; *etc.* Adult aphasic problems seem to be largely matters of either selection or arrangement, problems which appear to be of primal significance to all verbal behavior as well (2).

We do not wish to go further into the application of the hypotheses arrived at through the combined efforts of linguistics and neuropsychology. Although we have during the last few years attempted to put these deductions into practice, the number of children treated is too small as yet to evaluate the success or failure of this approach. We need the help of many speech therapists with their observations and results. For this reason, this article is a preliminary discussion to report on linguistic research on aphasia in children.

Summary

It appears that babbling is an activity to develop physiological tools, but not language specifically. It may be necessary to view faulty enunciation in aphasic children as due to motor inadequacy of 'language tools' and, therefore, to treat it on that level. If it is true that echolalia is only a more advanced form of babbling, there is little to be gained in using it to train a ten-year-old aphasic child. The importance of linguistic knowledge to research in aphasia in children is not limited to presenting new methods which may lead to solutions or to the formulation of experiments. It can assist speech therapists in the selection of materials, in the choice of nouns or verbs, in the use of echolalia, or gesture and other non-verbal signs, *etc.* For example, if we accept the assertion that the child first uses nouns, whereas language developed from verbs, it may be well indeed to assist an aphasic child not only in the acquisition of nouns, but also in the use of verbs. It may even be that verbs should be taught in the imperative form rather than in the usual declarative sentence structure with subjects and verb in agreement.

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5. Pike, K. L. *Language in Relation to a Unified Theory of the Structure of Human Behavior.* Glendale: Summer Institute of Linguistics, Vol. I, 1954; Vol. II, 1955.
6. *Révèsz, G. The Origins and Prehistory of Language.* New York: Philosophical Library, 1956.
7. Strauss, A. A. Aphasia in children. *Amer. J. phys. Med.,* 33, 1954, 93-99.
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In Memoriam

John Henry Muyskens, 1887-1957

John Henry Muyskens was born September 30, 1887, of Dutch parents in Orange City, Iowa, and died December 10, 1957, in Ann Arbor, Michigan, as the result of a cerebral hemorrhage.

He often said he spoke no English until he was fifteen years of age and as a boy worked in lumbering camps in Washington.

He attended Northwestern Classical Academy and Calvin College and graduated from the University of Michigan with the Degree of Bachelor of Arts in 1913. He received his Master of Science degree in 1920 and his Doctor of Science from the same University in 1925. In 1913 he married Maria Groen and had two children, Florence Douwana and Thieda Mary.

After graduating from the University of Michigan he was Superintendent of Schools at Saugatuck, Michigan, where he said he became acquainted with the child of one of the members of the school board who was mentally retarded and could not talk. He worked with this child and much to his surprise the apparent intelligence improved as the communication improved. This was the basis of his lifelong interest in our field.

He returned to Calvin College and was Instructor in French and German at Calvin College from 1914 to 1917 and Professor of Phonetics at the Kennedy School of Missions of Hartford Theological Seminary Foundation from 1919 to 1920. He was appointed Instructor in French at the University of Michigan from 1920 to 1922 and then became an Instructor in Physiology in the Medical School of the University of Michigan from 1922 to 1924.

It was during his experience as a teacher

in the Medical School that he became particularly interested in the research work in the psychology of language being carried on by Meader and Pillsbury on the campus.

A new position was created for him in French and Phonetics at the University of Michigan in 1924 which he held until 1929. He was made Associate Professor of Phonetics and General Linguistics in 1929, in which position he continued until his death.

During World War I, he was a member of the War Work Council and was decorated by the French Government for his activities overseas. He was a member of many scientific organizations and a co-author of the *Handbook of Bio-Linguistics* by Meader and Muyskens.

None of these dry details can express the full flavor of the man. He was possessed of an eidetic memory. Every scientific work he ever read was permanently stored away somewhere in that tremendous head ready to be called forth for argument, debate or to convince a student of the scientific validity of his premises.

He was a veritable giant, physically as well as intellectually. When one saw him seated behind a lecture table with his eyes twinkling and his beard bouncing up and down as he vigorously pointed out the physiological substrata of language, one did not realize the full size of the man. It was only when he stood to mark something on the blackboard that he unfolded almost as a miracle of gigantic proportions. He stood well over six feet four inches in height and was broad proportionately. It was one of his proud jokes to have a student try his lung capacity on the wet spirometer and perhaps by diligent effort manage to blow the tank up to 4500 cc. Dr. Muyskens would then sit down and with only the slightest effort completely bang the tank of the instrument against the top guiding bar.

He was intolerant of half-judged ideas, but only in so far as they seemed to him to challenge the integrity and honesty of science. He could not be bothered by diplomatic evasions under these circumstances but charged directly into the battle producing evidence, logic and argument as he went so that he was constantly engaged in a vigorous academic dispute of some sort or another with his colleagues, not for the sake of argument but for the sake of that truth which he sought diligently all of his life.

He was perhaps the most stimulating lecturer whom the author ever heard. It was his influence as expressed in his early lectures in 1928 which persuaded the writer to adopt this field as his profession. Frequently John Muyskens was asked by the University of Michigan to lecture to students when a particularly inspiring speaker was needed. He called this kind of lecturing 'pyrotechnics' and was rightfully proud of his abilities.

Another facet of his character was his interest in practical politics. He was a lifelong Democrat and he was constantly engaged in a dispute with the University about his political activities. At various times, he became a candidate for the offices of Mayor of Ann Arbor, State Superintendent of Public Instruction and United States Senator. To none of these posts was he ever elected simply because he would not stoop to evading the truth as he saw it. His remarks when he was interviewed by reporters frequently cost him more votes than he made by his appearances with groups of voters. Part of the attraction that politics had for him was the dynamic interaction of people which to his mind was a gigantic game that he simply could not keep from playing. He was never engaged in politics from a 'political' sense. He only felt sincerely that he could bring to these various offices the light of reason, and it must be admitted by all that reason was urgently needed at the time when he sought to bring it.

These remarks may not serve him as well as they should. There were many other sides to his character than that of the brilliant, disputatious, argumentative scientist. One had only to see him with a handicapped child to realize that behind the 'pyrotechnics' was a person of tremendous kindness and patience. Children liked him instinctively and even the most frustrated, disturbed child would run to him and ask to be picked up into that great lap and would do his best to talk to him. Frequently Dr. Muyskens would get the first communicative sounds from these children in a few minutes with them. He was an extremely warm-hearted man, fond of animals, fond of his family and fond of people.

Then finally something must be said about him as a teacher. The greatest mark of a teacher must be found in those that he has taught; so it is proper to remark that Harlan Bloomer, Harold Westlake, Hide Shohara, Herbert Weller, George Pflaum, Irene Poole, and many others have made and are making distinguished contributions as the direct result of his tremendous inspiration in the early days of their work.

His students loved him most when they were most irritated by him. His lectures were designed to elicit their thinking processes. He never taught deductively when he could teach inductively. For the student coming from the factory method of education which is our usual lot in our modern culture, it was often very baffling to be forced to use the mind instead of the textbook as the best guide toward truth.

Fundamentally he believed that the study

of the structure and function of the individual as energic manifestations of an ordered universe would bring all our needed answers. His work on the vegetative reflexes has stood the test of time and a great deal of modern therapy in cerebral palsy and other disorders is based on these fundamental concepts. When he began his work, speech, when it was considered at all, was thought to be a sort of psychological after-effect of emotions, and vague idea formulations.

It was John Henry Muyskens who pointed out that speech, and communication, and language were biological functions just as surely as any other biological function of the organism and could be studied by objective and scientific means.

His students all mourn his passing for in all of our lives he was for a time a very great guiding light and the present author acknowledges in full the stimulus that was given him by John Henry Muyskens. In a very real sense any creative accomplishment which he has produced has been the result of the training and teaching in disciplined thought that was given him by this very great pioneer, warm friend, and distinguished investigator in our field of speech and hearing disorders.

'There were giants in those days.'

MARTIN F. PALMER

Abstracts

Acoustic Analysis

VILBIG, F. The analysis of clipped speech. AFCRC Tech. Rep. 56-120, October 1956.

'Infinite clipping of speech may be regarded as a rectification in which the transfer characteristic of the rectifier is taken as part of a periodic rectangular waveform. The clipping process has only a small effect on intelligibility. The distortion frequencies it creates lie for the most part in the frequency region above 3000 cps and can be suppressed, if necessary, by cutting the frequency band at 3000 cps. A mathematical analysis of a speech spectrum for two frequencies, comparing theoretical with experimental results of clipping is diagrammatically illustrated.'

(*Author's precis*)

Aphasia

CARRERES VIRUELA, R. Reeducatión de afásicos. (Reeducation of aphasics.) *Rev. espan. Oto-neuro-oftal., Valencia*, 16, 1957, 36-39.

JELLINEK, A. Amusia. *Folia Phoniat.*, 8, 1956, 124-148.

LANDAU, W. M. and KLEFFNER, F. R. Syndrome of acquired aphasia with convulsive disorder in children. *Neurology*, 7, 1957, 523-530.

Six case histories are presented of children with a syndrome of acquired aphasia in association with some manifestations of convulsive disorder. Type of convulsion was found to vary: generalized, partial, myoclonic, or petit mal. The seizure manifestations were readily controlled medically, and were not closely associated with aphasic symptoms. In all cases a severe paroxysmal electroencephalographic abnormality, usually diffuse, was observed. Electroencephalographic improvement tended to parallel improvement in speech reeducation. General prognosis for these children is said to be good with appropriate treatment.

(*B. S. Street*)

SCHUELL, H. A short examination of aphasia. *Neurology*, 7, 1957, 625-634.

An examination for differential diagnosis of aphasia is presented with testing materials. This examination was designed primarily for the use of physicians and can be administered in 30 to 35 minutes. Test items which were found to be important diagnostic indicators were selected from the Minnesota Test for Differential Diagnosis on which seven years of research has been done. From the study of test results five diagnostic criteria have emerged.

Abstracts is edited by William Tiffany, University of Washington, and by Phillip A. Yantis, University of Michigan, assisted by the following committee: Robert A. Albright, Arizona State College; Asa J. Berlin, Pennsylvania State University; Virginia B. Carroll, Elizabeth Kenny Inst., Minneapolis; Alfredo Dub, Hospital Maciel, Montevideo, Uruguay; Emil Froeschels, New York City; Robert Goldstein, Central Institute; A. Bruce Graham, Henry Ford Hospital, Detroit; Morris Halle, M.I.T.; Clair N. Hanley, University of Washington; A. K. Kaires, U. S. Naval Training Center, San Diego; Bernard Landes, Texas Tech.; Dominic A. LaRusso, University of Washington; Boris Morkovin, USC; Herbert J. Oyer, Ohio State University; John M. Palmer, University of Washington; Maryjane Rees, Sacramento State College; Frank B. Robinson, Miami University; Vivian I. Roe, University of Indiana; Bernard B. Schlanger, West Virginia University; James L. Shapley, State University of Iowa; Joseph G. Sheehan, University of California; Adam J. Sortini, The Children's Medical Center, Boston; Barbara S. Street, Minneapolis Veterans Hospital; Wayne L. Thurman, Eastern Illinois State Teachers College; John C. Webster, USN Electronics Laboratory, San Diego; Deso Weiss, New York City; Dean E. Williams, Indiana University; Abraham Zaliouk, Haifa, Israel.

These criteria are described and the prognosis for each group is discussed.

(*B. S. Street*)

WARRINGTON, E. and ZANGWILL, O. L. A study of dyslexia. *J. Neurol. Neurosurg. Psychiat.*, 20, 1957, 208-215.

A case of relatively pure word-blindness (verbal alexia) is presented in a 41-year-old, right-handed electrician. Following a complaint of increasing difficulty in understanding what he read, a diagnosis of left occipito-parietal meningioma was made and surgery completed. Following surgery, there was found residual word-blindness, continuing right homonymous hemianopia, mild impairment in writing and calculating, and gross derangement of normal pattern of scanning and fixations in reading. Little change could be achieved in the patient's problem and the authors conclude the reading impairment is due to the poor compensation made by the patient for his right homonymous hemianopia and resultant scanning difficulty.

(*V. B. Carroll*)

Articulation Disorders

SHEN, Y. Recognition and production exercises in pronunciation. *Language Learning*, 7, 1956-57, 18-21.

The frequent problem encountered by the foreign student of perceiving phonetic differences between the native speech and American is discussed. Two kinds of exercises to alleviate the difficulty are presented.

(*F. Robinson*)

WINNEN, W. Über einen Fall von Vokalsprache bei 4½ jährigen Zwillingen. (Vocal speech in 4½ year old twins.) *HNO, Berlin*, 6, 1956-57, 191.

Idioglossal speech consisting chiefly of vowels is reported in mentally and somatically normal twins.

(*E. Froeschels*)

Audio Equipment

Audio amplifiers. *Consum. Res.* Bull. 39, 1957, 15-17.

Six 20-30 watt amplifiers were tested for frequency distortion, noise level, and power output. These results plus general characteristics are discussed.

(*W. L. Thurman*)

Hi-fi amplifiers. *Consum. Rep.*, 22, 1957, 228-234.

Tests of 22 popular pre-amplifiers and power amplifier combinations costing $140.00 or less are reported. They were checked for amount of power, distortion, noise, balance and equalization, sensitivity and some special features. Only five were rated high in over-all quality.

(*W. L. Thurman*)

MOSER, H. M. and DREHER, J. J. Operational tests of miniature microphones and receivers. Ohio State Univ. Res. Foundation TR 36 (AFCRC TN 56-57), Oct., 1956.

Three light weight microphones, an RCA M-33 (noise cancelling dynamic), a Dyna-Empire D-314 magnetic ear insert receiver used as a microphone under a David Clark 372-8 ear muff, and a Dyna-Empire B-36 bone conductor used on the forehead as a microphone, were worn by two pilots in two different type propellor airplanes. PB words were transmitted from air to ground, recorded and played back to 10 listeners in the quiet. Listener scores showed significant differences among the microphones, ranking them in the order listed above.

(*J. C. Webster*)

STAFF OF BOLT, BERANEK AND NEWMAN INC. Capabilities and limitations investigation of long-range public address equipment. Bolt, Beranek and Newman Rep. 493, Job 865, 1 July 1957.

This report presents a calculation procedure which is basically designed to enable a loudspeaker team leader in the field to predict with a high degree of probability the success or failure of his assignment to cover a given target area with intelligible speech. A discussion is given of the necessary procedures to validate the calculation system before putting it to use. A detailed justification of the proposed calculation scheme is presented, together with the necessary firing maps, alignment charts and tables.

(*J. C. Webster*)

Audiometry

GLORIG, A. Hearing evaluation in industry. *Eye, Ear, Nose, Throat Mon.*, 36, 1957, 519-523.

The writer suggests that industries carry out a program of preplacement testing. He

recommends test frequencies 500, 1000, 2000, 3000, 4000 cycles per second. If the preplacement test shows an average loss of more than 15 db through 500, 1000, 2000 cps, the employee should be referred to an otologist. He further suggests that 4000 cps be used as a single frequency follow-up test. The writer presents a copy of the Hearing Conservation Data Card, No. 1, which was prepared by the Research Center of the Subcommittee on Noise in Industry. He suggests that although the industrial testing program does not require that a physician perform the tests, it is imperative that the testing be done under medical supervision.

(*H. J. Oyer*)

Hood, J. D. The principles and practice of bone conduction audiometry: a review of the present position. *Proc. roy. Soc. Med.*, 50, 1957, 689-697.

The well-known difficulties in obtaining true bone conduction thresholds when a disparity of more than five decibels exists between the thresholds of two ears are described. A rationale for using bands of noise for masking the untested ear in order to overcome these difficulties is presented. A 'shadowing' procedure is described and recommended as a method of establishing true bone conduction thresholds. The use of an insert receiver for masking is also recommended in cases of severe, mixed losses.

(*J. L. Shapley*)

Huizing, H. C. and Kruisinga, R. J. H. On the use of the whispered voice in audiology. *Acta Otolaryng.*, 48, 1957, 106-111.

In this article, the authors report their attempt 'to find out if this condition of equivalency of distance measurement by means of the whispered voice in different types of hearing loss is fulfilled or not.' Comparing PB articulation scores for spoken and whispered voices between subjects with conductive and perceptive impairment, the researchers found that, when used with discretion, the whispered voice can be used as a tool in testing and training of audiological cases.

(*D. A. LaRusso*)

Irwin, J. V., Hind, J. E. and Aronson, A. E. Experience with conditioned GSR audiometry in a group of mentally deficient individuals. *Train. Sch. Bull.*, 54, 1957, 2.

GSR audiometry utilizing a recently developed technique for cathode ray recording of GSR's was attempted in a group of 20 mentally deficient individuals, 16 of whom had known or suspected hearing losses. Results did not indicate any obvious relation between I.Q. and degree of success in carrying out conditioned audiometry. An interesting observation was that several subjects on whom conditioned GSR's had been inadequate for threshold determinations exhibited GSR's accompanying their voluntary responses down to threshold or near-threshold values. It was implied that apparently their failure to give conditioned GSR's did not stem from malfunction of the peripheral sympathetic mechanisms. The authors feel that the most significant result is the demonstration of essentially normal conditioned GSR's in the major portion of a group of individuals of low I.Q.

(*B. B. Schlanger*)

Jerger, J. F. and Carhart, R. T. Continuous versus interrupted stimuli in automatic audiometry. USAF School Aviat. Med. Rep. 56-58, Mar. 1957.

Ten young adults traced Békésy-type audiograms (1 db/sec attenuator speed) at 250, 1000 and 4000 cps under two conditions: continuous-tone presentation, and an interrupted-tone stimulus (on 300 msec; off 1200 msec). Mean thresholds for interrupted tones (in decibels) were significantly higher (worse) at 250 cps, the same as for continuous tones at 1000 cps, and significantly lower at 4000 cps. The amplitude range of the tracings was always lower with the continuous-tone stimulus, significantly so at 250 and 4000 cps. The variability (standard deviation) among the 10 listeners was never significant for either thresholds or range of amplitudes. Interrupted tones were recommended.

(*J. C. Webster*)

Kobrak, H. G. and Domeier, E. Possibilities and requirements for the management of industrial deafness. *Arch. Otolaryng., Chicago, 65*, 1957, 509-511.

'Automation' in audiometry is presented for industrial use by means of a special 'automatic mass audiometer' requiring no audiometrist. With this equipment it's said that 'over 90% of tested persons have a reliable audiogram.' Photographs and de-

scriptions of the equipment and procedures in pure tone and speech audiometry are given.

(*J. M. Palmer*)

SOMMERS, R. K. A cost analysis study of an individual pure tone hearing screening testing program. *Pennsylvania Speech Ann.*, 14, 1957, 32-35.

The cost of a hearing screening testing program by nurses in a semi-rural county is reported. Included in the analysis are salaries, travel time and expenses, depreciation and maintenance of audiometers. The per-pupil costs for 1955 and 1956 were 16 and 15.3 cents.

(*A. J. Berlin*)

STATTEN, P. and WISHART, D. S. Pure-tone audiometry in young children; psychogalvanic-skin-resistance and peep-show. *Trans. Amer. otol. Soc.*, 1956, 141-168.

The authors describe in detail their techniques in the use of PGSR and peep-show audiometry. They evaluate their results using the PGSR method with 101 children (122 tests) and the peep-show method with 204 children. With PGSR, the results were considered 15% successful and 87% partially successful. With the peep-show, 73-90% of the results were considered successful depending upon the age category considered. However, the authors point out that since different types of children were tested by the two methods, the results cannot be compared.

(*J. L. Shapley*)

Auditory Discrimination

NEFF, W. D. Behaviorial studies of auditory discrimination. *Ann. Otol., etc.*, 66, 1957, 506-513.

The author reports the results of experiments in which cortical areas have been ablated in experimental animals and resulting responses on auditory discrimination tasks have been correlated with the site and degree of destruction.

(*C. N. Hanley*)

Bibliography

GATTI, J. Reports of research in the field of engineering psychology. Wright Air Development Center Tech. Rep. 56-154, April 1956.

This bibliography lists by functional groupings the authors and titles of the reports published by the Psychology Branch, Aero Medical Laboratory, Directorate of Research, Wright Air Development Center, since its inception in 1945.

Copies of these WADC and many other government reports can be obtained by government organizations and government contractors from the Armed Services Technical Information Agency, Document Service Center, ATTN: TIC, Knott Building, Dayton 2, Ohio. For non-government users many of these reports are available for purchase from the Office of Technical Service, Department of Commerce, Washington 25, D. C.

(*J. C. Webster*)

GRAY, G. W. Doctoral dissertations in areas contiguous to speech. *Speech Monographs*, 24, 1957, 299-308.

The dissertations listed here were written at institutions which do not confer the doctorate in speech.

(*D. E. Williams*)

LEWY, A., SHAPIRO, S. L. and LESHIN, N. Functional examination of hearing. Summaries of the bibliographic material available in the field of otolaryngology. *Arch. Otolaryng., Chicago*, 66, 1957, 101-116.

Binaural Summation

CALEARO, C. Binaural summation in lesions of the temporal lobe. *Acta Otolaryng.*, 47, 1957, 392-395.

In a study of the diagnostic significance of the central summation phenomenon in the case of temporal lesions the author utilized a test previously described by Bocca. In this test the subjects were asked to repeat bisyllabic words which had been presented binaurally in such a way that one ear received a signal of normal quality and insufficient intensity while the other received a signal of normal intensity distorted in quality. It was the hypothesis, on the basis of Bocca's findings, that 'in a normal subject, a summation effect is obtained that is about equal to the arithmetic addition of the two monaural articulations.' The author summarizes: 'Ten patients with lesions of the temporal lobe have been tested; in the cases where there was an impairment of the cortical auditory area, it has been shown that the effect of summation

integration was absent whenever the subthreshold stimulus was sent to the ear opposite the lesion. The test thus offers evidence for the assumption that a normal binaural summation can be obtained only when both central auditory areas are intact . . . .'

(*D. A. LaRusso*)

Brain Damage

ROTHENBERG, S. F. and CORDAY, E. Etiology of the transient cerebral stroke. *J. Amer. med. Assn.*, 164, 1957, 2005-2008.

The authors investigated cerebral angiospasm as a cause of 'small' cerebral strokes. Fifteen rhesus monkeys were anesthetized and openings made in their skulls, the meninges were removed or reflected for observations of the blood vessels. In two cases Lucite windows were placed over the openings. Seven procedures were followed designed to alter the conditions of blood supply and the external stimulation of the blood vessels, and photographs were made during the procedures. The investigators concluded their investigations with the suggestion that 'cerebral angiospasm does not occur.'

(*W. L. Thurman*)

Cerebral Dominance

EAMES, T. H. Frequency of cerebral lateral dominance variations among school children of premature and full-term birth. *J. Pediatrics*, 51, 1957, 300-302.

Cerebral Palsy

HIPPS, H. E. Training principles for the patient with cerebral palsy. *Brit. J. of Phys. Med.*, 20, 1957, 34-39.

WALLACE, H. M., LOSTY, M. A., SANDERS, D., SIFFERT, R. S., TOBIS, J. A., and RICH, H. Children with cerebral palsy; cost of care and results in 770 children. *Pediatrics*, 20, 1957, 703-715.

The results of a follow-up study of 770 children with cerebral palsy are detailed. The findings demonstrate that some redirection of the program to include development, expansion and improvement of some alternate services within the community is advisable. Other findings indicate that over half of the expenditure was for convalescent care and that early information of predictive value in the care of the physically handicapped child includes knowledge of his mental status, speech intelligibility and the ability to feed and dress. Measurements used at various age levels are appended.

(*B. B. Schlanger*)

Cerebral Palsied Deaf

PORTER, V. C. The cerebral-palsied deaf. *Amer. Ann. Deaf*, 102, 1957, 359-363.

This paper intends to show the need and to lay the groundwork for more study of the educational status of cerebral palsied children in the United States. In order to clarify this problem, information was secured by the author from directors of 99 schools and classes for the crippled, 92 teachers from these schools and classes; and also from the directors of 66 schools and classes for the deaf or hard-of-hearing, and 100 teachers from these schools. 'Although the survey has probably not found all of the children who are afflicted with both cerebral palsy and deafness, it has located a large number of them. It also shows to some extent what is being done to educate them.'

(*C. N. Hanley*)

Cleft Palate

BRADER, A. C. A cephalometric x-ray appraisal of morphological variations in cranial base and associated pharyngeal structures: implications in cleft palate therapy. *Angle Orthodont.*, 27, 1957, 179-195.

LILLYWHITE, H. Communication problems in the cleft palate rehabilitation team. *Cleft Palate Bull.*, 7(2), 1957, 8-10.

The mere presence of a cleft palate 'team' does not assure coordinated effort. The principle barriers center around problems of communication. Eleven barriers are listed, followed by five assets in a good medical team situation. Fourteen suggestions are offered for improving the team function.

(*A. J. Berlin*)

MACCOLLUM, D. W. and RICHARDSON, S. O. Management of the patient with cleft lip and cleft palate. *Pediatrics*, 20, 1957, 573-583.

The rationale and a general description of one type of cleft lip—cleft palate program as it is carried out at the Children's Medical Center in Boston is discussed. The authors' policy is to repair a cleft lip at six to eight weeks of age and to repair the palate within the first two years of life, preferably at about 14 months of age. The conclusions of a study of a group of 164 children operated on between the years of 1942 and 1952 are said to corrobrate the authors' previous clinical impression that the results of early palatal closure have been so satisfactory that continuation of the policy seems warranted. Supportive and adjunctive care, including speech therapy, are discussed. Photographs of several cases are also included.

(*B. B. Schlanger*)

MILLARD, R. T. The role of sound spectrographic tracing in cleft palate patients. *Cleft Palate Bull.*, 7(2), 1957, 7-8.

The Sonoagraph, a sound spectrograph, is described briefly. Sonagrams of cleft palate patients are said to differ widely, and some examples of deviant patterns are mentioned. It is suggested that these patterns may help in evaluating the need for and results of therapy, and provide permanent objective records of progress.

(*A. J. Berlin*)

POSEN, A. L. Some principles involved in orthodontic treatment of operated unilateral and bilateral complete cleft palate. *Angle Orthodont.*, 27, 1957, 109-113.

The author suggests orthodontic techniques and practices which are used to overcome the abnormal forces created by the pressure of the cleft and subsequent surgery, in order that normal downward and forward growth of the maxilla may take place.

(*C. N. Hanley*)

PRUZANSKY, S. The foundations of the cleft palate center and training program at the University of Illinois. *Angle Orthodont.*, 27, 1957, 69-82.

RUDING, R. A new operative procedure for cleft palate, based on anatomical studies. *Arch. Chir. Neerl.*, 7(3), 1955, 189-217.

SIDNEY, R. A. and MATTHEWS, J. An evaluation of the social adjustment of a group of cleft palate children. *Cleft Palate Bull.*, 6 (4), 1956, 10.

Twenty-one cleft palate children were compared with two control groups on the basis of social adjustment as measured by a sociometric questionnaire, the California Personality Test, the Thematic Apperception Test, the Teachers Rating Scale, and the Vineland Social Maturity Scale. The data are said not to support the assumption that the social adjustment of cleft palate children is markedly inferior to that of other children.

(*A. J. Berlin*)

SUBTELNY, J. D. The importance of early orthodontic treatment in cleft palate planning. *Angle Orthodont.*, 27, 1957, 148-158.

Although treatment of secondary dentition is frequently required, attention to the primary dentition plays an important role in 'the encouragement of more normal growth and development with a resulting improvement in soft tissue relationships, and . . . the provision of a more harmonious intraoral environment for the development of highly complex speech patterns.'

(*C. N. Hanley*)

SWOISKIN, B. L. Lower arch form in unilateral cleft palate. *Angle Orthodont.*, 27, 1957, 124-132.

This paper deals with the possible cause and effect relationship between the malocclusion of the upper and the lower dental arches. Clinical evidence is presented by the author and is said to support a direct relationship. It is suggested that early orthodontic treatment be instituted so as to prevent resultant mandibular deformation.

(*C. N. Hanley*)

THOROUGHGOOD, W. C. and FISCHER, C. C. Note on the repair of cleft lip at the twelfth hour after birth. *Pediatrics*, 20, 1957, 698-702.

A series of repairs of unilateral cleft lip was carried out on twelve cases at the age of twelve hours. The authors state that excellent results were obtained. Advantages of an operation at this age are discussed. Objections are also noted. Several pre- and postoperative photographs are included.

(*B. B. Schlanger*)

Communication Theory

BRESSON, F. Language et communications. (Language and communication.) *Année Psychol., Paris,* 2, 1953, 478-502.

The author reviews various theories of communication including that of Carroll, Shannon and Weaver, Ogden and Richards, Miller and others.

(*A. J. Sortini*)

CHERRY, E. C. On the validity of applying communication theory to experimental psychology. *Brit. J. Psychol.,* 48, 1957, 176-188.

Basic assumptions of communication theory and weaknesses in the analogy between a human being and a communication channel are outlined. The author states that an external observer is not required in communication theory at present, and that an external observer cannot observe the decision process in a human. He feels, however, that certain hypotheses as to the process may be defined experimentally, and he discusses several experiments that have been made.

(*R. W. Albright*)

Conditioning

DE MONTPELLIER, G. Le processus de conditionnement et les faits de conditionnement indirect. (The development of conditioning and the facts of indirect conditioning.) *Année Psychol., Paris,* 2, 1950, 429-440.

The author reviews the process of conditioning, citing the work of Pavlov, Tolman and others.

(*A. J. Sortini*)

Delayed Sidetone

BEAUMONT, J. T. and FOSS, B. M. Individual differences in reacting to delayed auditory feed-back. *Brit. J. Psychol.,* 48, 1957, 85-89.

Individual differences in 30 subjects, ages 18-30, were compared in their reaction to the effects of feed-back upon reading and recitation, and the relations between feed-back and perseveration were studied. Material was read and recited with and without auditory feed-back, and tracing and mirror-writing were done with and without visual feed-back. The authors report low correlations among tests but feel that they did sample individual differences. They suggest that a high perseverance is affected by previous stimulation, and by a conflict between habits on succeeding tests. Also, they suggest that individuals susceptible to delayed auditory feed-back may have rigid personalities similar to 'natural' stutterers.

(*R. W. Albright*)

LEITH, W. R. and PRONKO, N. H. Speech under stress: a study of its disintegration. *Speech Monographs,* 24, 1957, 285-291.

The speech reactions of 60 subjects were studied under conditions of (1) stress created by delayed auditory feedback and (2) non-stress where the subject was relieved of delay. The subjects spoke while performing a motor task. An electric shock was used to punish improper motor and verbal responses. Speech was affected under the stress situation as measured by reading rate, omission of words in the reading passage, speech intensity, and intensity variability.

(*D. E. Williams*)

SIEGENTHALER, B. M. and BRUBAKER, R. S. Suggested research in delayed auditory feedback. *Pennsylvania Speech Ann.,* 14, 1957, 24-31.

Several types of projects using delayed feedback are suggested. These are grouped by emphasis on (1) the speaker (e.g. correlation between the speaker's mean syllabic duration and amount of delayed auditory feedback causing speech disturbances, (2) the speech output (e.g. do different languages result in different speech disturbances?), and (3) delayed apparatus modification (e.g. effect of unilateral delayed feedback). A 56-item bibliography is included.

(*A. J. Berlin*)

WINCHESTER, R. A. and GIBBONS, E. W. Relative effectiveness of three modes of delayed sidetone presentation. *Arch. Otolaryng., Chicago,* 65, 1957, 275-279.

Ear Pathology and Surgery

The human ear. *Consum. Rep.,* 22, 1957, 391-393.

This article presents popularized discussion of the anatomy of the ear and its function, frequent pathologies and typical medical therapies.

(*W. L. Thurman*)

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MAR 19 1958
MANHATTAN
KANSAS

ADAMS, W. S. The effects of nasopharyngeal irradiation in tubotympanic deafness, 1948-1953. *J. Laryng. Otol.*, 71, 1957, 565-576.

This is the report of a five-year survey conducted in five separate medical centers in Great Britain to assess the value of the use of radium in cases of tubotympanic deafness. The author concludes, from his clinical reports, that external irradiation of the nasopharynx where doses exceeding 1000 r have been used result in damage to the nasopharyngeal mucosa and appear to do little to relieve the hearing impairment. Some significant improvement has been noted when smaller doses have been given employing a pharyngeal radium applicator.

(*C. N. Hanley*)

DIAMANT, M. Anatomical etiological factors in chronic middle ear discharge. *Ann. Otol., etc.*, 66, 1957, 380-389.

HENNER, R. Oto-rhino-laryngology-deafness surgery: an evaluation. *Amer. J. med. Sci.*, 234, 1957, 468-473.

A historical review of the development of the fenestration operation is given. Also outlined is a brief description of the surgical procedure now commonly used. The merits of the fenestration operation are compared to those of the stapes mobilization operation. The meticulous techniques of deafness surgery are said to be accountable for a new interest in conservation and restoration of hearing in middle ear defects due to inflammatory disease.

(*J. L. Shapley*)

HOLMGREN, L. Acoustical evaluation of factors involved in stapes mobilization. *Acta Otolaryng.*, 48, 1957, 124-135.

Too often those responsible for ordering a stapes mobilization appear to arrive at this decision by adapting the guides peculiar to diagnosis for fenestration. The author cautions against placing too much weight on the presence of a lowered bone-conduction curve when estimating the probabilities for a stapes mobilization.

(*D. A. LaRusso*)

HOOPLE, G. D. Advances in otology. *J. Amer. med. Assn.*, 165, 1957, 232-234.

Early diagnostic and remedial methods and those presently in use in otology are summarized. Possible future developments are prophesied.

(*W. L. Thurman*)

LASKIEWICZ, A. Problems concerning allergic conditions of the ear. *Acta Otolaryng.*, 48, 1957, 112-119.

The author reports that after consideration of other studies and an observation of fifty cases of ear disease associated with problems of allergy, he can conclude that there is no confirmation of the belief that 'allergies lead to infections.'

(*D. A. LaRusso*)

LÓPEZ PORRUA, J. M. and FERNANDEZ GUTIERREZ, F. Aracnoiditis qúistica del ángulo pontocerebeloso simulando un neurinoma del acústico. (Cystic arachnoiditis of the cerebellopontine angle simulating an acoustic neurinoma.) *Rev. espan. Oto-neuro-oftal., Valencia*, 15, 1956, 405-413.

A case is presented in which an arachnoid cyst in the right posterior fossa produced symptoms usually associated with neurinoma of the auditory nerve: depressed cochlear and vestibular function on the right, decrease in the corneal reflex and papilledema on the right, and cerebellar symptoms. In addition, pre-operative radiography showed dilation of the right internal auditory artery. One month after removal of the pathologic growth hearing was normal in the right ear and the semicircular canals were hyperresponsive to cool water.

(*R. Goldstein*)

MAFFEI, G. A proposito delle lesioni auricolari conseguenti ad embriopatia rubeolica. (Concerning auricular lesions in consequence of rubeolar embryopathy.) *Riv. audiol. Prat., Milano*, 5, 1955, 9-27.

The author discusses the innate anomalies of children which may be the result of exanthematic disease (rubeolar embryopathy) of the mother, especially in the first four months of pregnancy. Changes in hearing due to rubeola are emphasized. The principal studies conducted so far in this field are discussed and considered according to the latest investigations. The aetio-pathogenetic theories are mentioned critically. The author presents his personal observations in the case of deaf-mutism as a consequence of rubeola in the foetus. The problem of prophylaxis and therapeutics of

this type of deaf-mutism is dealt with in detail.

(*A. Dub*)

MEURMAN, O. H. and GRAHNE, B. Hearing in Ménière's disease. *Prac. Otol. Rhino. Laryng.*, 18(6), 1956, 365-376.

MONTANDON, P. A. La concordance entre les seuils d' audition et les seuils vestibulaires dans les lésions de l'oreille interne. (The similarity between the cochlear and vestibular thresholds in lesions of the inner ear). *Acta Otolaryng.*, 48, 1957, 59-69.

REBAGLIATTI, H. La timpanoplastia. (Tympanoplasty.) *Rev. espan. Oto-neuro-oftal., Valencia*, 16, 1957, 10-31.

ROHAN, R. F. Artificial tympanic membranes: old and new. *J. Laryng. Otol.*, 71, 1957, 605-615.

The author describes his procedure of 'patching' the tympanic membrane as a means to hearing restoration as well as a method in the accurate diagnosis of infective derangements of the middle ear. Audiograms are presented showing pre- and post-operative hearing levels.

(*C. N. Hanley*)

SALTZMAN, M. Presbycusis. *Arch. Otolaryng., Chicago*, 66, July 1957, 67-69.

SCHEER, A. A. Rehabilitation of the hard of hearing. *Eye, Ear, Nose, Throat Mon.*, 36, 1957, 593-600.

The writer describes fenestration and mobilization of stapes procedures, observing that good results can be obtained in 70 per cent of the cases when using the transincudal technique combined with footplate work.

(*H. J. Oyer*)

SEKULA, J. Post-operative results of tympanoplasty in the course of the radical operation. *Acta Otolaryng.*, 47, 1957, 351-357.

The author describes the results achieved in a study concerned with the surgical treatment of chronic otitis media. He records that liberal skin grafts (after the method developed by Miodoński) have been instrumental in improving the audition of 'a considerable percentage of the patients operated on.'

(*D. A. LaRusso*)

WINSTON, J. Tinnitus. *Med. Clin. N. Amer.*, 1956.

Ear Physiology

CITRON, L. and EXLEY, D. Recent work on the biochemistry of the labyrinthine fluids. *Proc. roy. Soc. Med.*, 50, 1957, 697-701.

The authors describe their highly refined method of microchemical analysis of minute fluid samples. The chemical composition of endolymph, perilymph, and cerebro-spinal fluid as determined by their technique is compared to similar analyses by several previous investigators.

(*J. L. Shapley*)

GALAMBOS, R. Microelectrode studies on the auditory nervous system. *Ann. Otol., etc.*, 66, 1957, 503-505.

This paper is presented as a brief summary of the experiments using microelectrodes in the auditory nervous system. Consideration is given to the examinations of the auditory nerve, cochlear nuclei, superior olive, inferior colliculus, medial geniculate and auditory cortex.

(*C. N. Hanley*)

Galvanic Skin Response

CARDU, B. Facteurs physiques et facteurs psychiques de la response galvanique de la peau. (Physical and mental factors in the galvanic response of the skin.) *Année Psychol., Paris*, 2, 1954, 345-356.

The author suggests that originally the galvanic response of the skin was used in clinics as an indicator and measure of emotional troubles. The author's experiments show that GSR is a valuable technique, but is difficult to interpret. Responses are proportional to the intensity of emotional shock. The intensity of the response is very variable from one subject to another, and is attenuated with repetition. This attenuation, which can be strong, varies with subjects. Individual responses are especially variable; these variations have a tendency to increase with the intensity of response, and the latter depends strongly on the subjects and on the adaptation. In brief, particularly strong variations in responses interest the clinician the most.

(*A. J. Sortini*)

Hard of Hearing Child

JOHNSTON, P. W. and FARRELL, M. J. An experiment in improved medical services for hard of hearing children at the Walter E. Fernald State School. *Amer. J. ment. Def.*, 62, 1957, 230-237.

A group of 46 hard of hearing children were divided and matched with the experimental group receiving medical, educational and audiological assistance. While final judgments and interpretations on the value of therapies for these children await further study, tentative results indicated that speech reception thresholds of members of the experimental group improved significantly. However, this potential did not appear to be used to good advantage. Measurements of speech production and academic achievement demonstrated no apparent improvement in these functions. An unexpected result indicated that, despite the high incidence of hearing loss in the school population, no child was basically misclassified in the education department because of unrevealed hearing impairment.

(*B. B. Schlanger*)

MORKOVIN, B. V. Participation of the hearing impaired child in life situations. *Better Hearing*, Spring, 1957, 11-13, 17.

The author discusses the problem of communication for the hard-of-hearing child. Emphasis is placed on the necessity of learning language in "life situations" so that the partially heard sounds and lip movements will become meaningful to him in context with related events.

(*W. H. Perkins*)

Hearing Aids

PRALL, J. Group and wearable hearing aids in a residential school for the deaf. *Amer. Ann. Deaf*, 102, 1957, 240-250.

The uses, advantages and limitations of group and wearable hearing aids in a residential school for the deaf are discussed. The following features of the training program are considered important: (1) Auditory training with group aids for all pupils; (2) an adequate program of hearing aid selection and fitting; (3) use of group aids in academic instruction; (4) constant daily use of the wearable aid; and (5) trained personnel.

(*C. N. Hanley*)

Hearing Conservation Program

BENSON, R. M. Detroit public schools hearing conservation program. *Hearing News*, 25(5), 1957, 7-8.

This is a brief description of the structure of the hearing testing and follow-up program in the Detroit Public Schools, with data on the number of children examined from Sept. 1956 to Jan. 1957. The program is administered by the supervisor of speech correction and is conducted by eight hearing consultants assigned geographically and one consultant in a central Speech and Hearing Clinic. Relationships with school personnel, parents and physicians are explained. The present program is considered experimental.

(*A. J. Berlin*)

Intelligence of the Deaf

OLERON, P. Pensée conceptuelle et language. Performances comparses de sourds-muets et d'entendants dan des epreuves de classement multiple. (Conceptual thought and language. Performances compared of deaf-mutes and understandings in trials of multiple classing.) *Année Psychol., Paris*, 1, 1951, 89-120.

The author feels that further research is necessary in order to pin down the handicap of deaf-mutes in the realm of intellectual activities. He suggests that the determination of this handicap is of general interest and that psychologists are inclined to admit that language is an important factor in the development and the exercise of intellectual activities. However, an examination of the facts reveals a "concomitance" between this development and the usage of language.

(*A. J. Sortini*)

STUNKEL, E. R. The performance of deaf and hearing college students on verbal and non-verbal intelligence tests. *Amer. Ann. Deaf*, 102, 1957, 342-355.

This study was designed to examine and improve procedures for testing deaf people for the Federal-Service Entrance Examination. Results indicated that the deaf have above-average ability on a non-verbal reasoning test, but show weaknesses for verbal materials. Recommendations for job analyses are offered.

(*C. N. Hanley*)

Intelligibility

EGAN, J. P. Monitoring task in speech communication. *J. acoust. Soc. Amer.*, 29, 1957, 482-489.

Two experiments are conducted to study the effects of two factors on the performance of a listener in receiving and identifying a relevant message in several noisy channels. These two factors are (1) the discriminability of the message and (2) the listener's criterion for accepting a message as correct or for rejecting it as incorrect.

(*P. A. Yantis*)

HOFFMAN, H. S. The detection of signals and their attributes. USN Medical Research Lab., Proj. NM 003 041.55.02, Rep. 277, 25 Sept. 1956.

'A series of noise-like signals was presented against a background of noise. Listeners were required to detect these signals and to specify their separate attributes. One attribute (chopping) was produced by periodically interrupting the signal. The second attribute (modulation) consisted of a periodic change in signal bandwidth. A given signal was either chopped, modulated, chopped and modulated, or steady. It was found that though the four signals were equally detectable, the detectability of the separate attributes varied as a function of their nature and number. Listeners differed in the extent to which modulation detection was adversely affected by the presence of chopping. In all other respects, differences among listeners were small.'

(*Author's precis*)

MULLINS, C. J. and BANGS, J. L. Relationships between speech discrimination and other audiometric data. *Acta Otolaryng.*, 47, 1957, 149-157.

This study concerns itself with the discovery of relationships existing between speech discrimination and other audiometric data, including pure-tone losses, cochlear reserve, recruitment, speech reception threshold, and 'inferred masking.' Correlations were run on a group of subjects which ranged from a maximum *N* of 199 ears, to a minimum of 165. Zero-order correlations were obtained between speech discrimination and each of the audiometric measures noted above, after which a Wherry-Doolittle multiple R was computed. A multiple *R* of .873 was obtained between speech discrimination and 'the five most promising of the above measures.' With the elimination of the measure of cochlear reserve from this group, the multiple *R* was .716.

(*D. A. LaRusso*)

TOLHURST, G. C. The relationship of speaker intelligibility to the sound pressure level of continuous noise environments of various spectra and octave-band widths. USN School Aviat. Med., Proj. NM 18 02 99, Rep. 69, 18 March 1957.

The effects of six tilted and six octave-band ambient noise spectra upon speaker intelligibility were studied as each of twelve noises was presented at six different sound pressure levels through 125 db. Recordings were made of 48 speakers in the noises and these were subsequently played back to panels of listeners. Generally, as the ambient noise surrounding talkers is increased in sound pressure level, there is a decrement in speaker intelligibility whether the noise is of a tilted or an octave-band spectrum. The most detrimental tilted spectrum (-3 db per octave) yielded an average decline in speaker scores of 2.3 percentage points per db between 105-125 db of noise. The remaining tilted spectrum noises in order of adverse effect on intelligibility were 0 db, 3 db, -6 db, -12 db, and -18 db per octave. The most detrimental octave bands in order were 1200-2400 cps, 600-1200 cps, 300-600 cps, 150-300 cps, 2400-4800 cps, and 75-150 cps. The 1200-2400 cps band noise averaged 0.75 percentage decrement per db.

(*J. C. Webster*)

Language and Linguistics

ANDERSON, W. L. Structural linguistics: some implications and applications. *The Engl. Journal*, 46, 1957, 410-418.

ASHWORTH, M. The language problem of the partially deaf child. *Speech*, 21, 1957, 24-29.

The partially deaf child is differentiated from the totally deaf, but even though he has some hearing he may have a language handicap as the result of incomplete word patterns or lack of experience. Language development is more important than speech. Therapy techniques are described, including the use of visual and auditory stimulation,

hearing aids, graded opportunities and reading.

(*A. J. Berlin*)

GREWEL, F. Possession of language, use of language and speaking. *Speech*, 21, 1957, 30-33.

A language is a cultural phenomenon, while speech is the oral form of language use. The pattern of language development (phonematic, morphological and syntactical) should be studied and retardation in language acquisition should be differentiated from articulatory retardation. Language problems of the feeble-minded aphasic and deaf are discussed.

(*A. J. Berlin*)

VINEYARD, EDWIN E. and MASSEY, H. W. The interrelationships of certain linguistic skills and their relationship with certain scholastic achievements when intelligence is ruled constant. *J. Educ. Psychol.*, 48, 1957, 279-286.

The performance of 176 college freshmen on tests of vocabulary, speed of comprehension and spelling were related to scholastic success as measured by the grades achieved in a semester's college work. The authors report no significant relationship between speed of paragraph comprehension and scholarship when the influence of intelligence was removed. Vocabulary skill, paragraph comprehension, and spelling are said to be substantially related with one another and all are related with intelligence. Each of the variables is reported to be substantially related with scholastic success.

(*H. J. Oyer*)

Laryngeal Pathology and Surgery

MELAMPI, M. Observations on paralysis of the vocal cords in some of the neurological diseases. *Ann. Otol., etc.*, 66, 1957, 487-492.

The author presents a review of the occurence of laryngeal paralyses which he has observed clinically in cases of pseudobulbar paralysis, labioglossopharyngeal paralysis, multiple sclerosis, syringomelia and tabes dorsalis.

(*C. N. Hanley*)

NELSON, T. G. and BOWERS, W. F. Tracheotomy—indications, advantages, techniques, complications and results. *J. Amer. med. Assn.*, 164, 1957, 1530-1534.

This discussion is based on analysis of 310 'recent' tracheotomies.

(*W. L. Thurman*)

THORNELL, W. C. Transoral intralaryngeal approach for arytenoidectomy in bilateral vocal cord paralysis with inadequate airway. *Ann. Otol., etc.*, 66, 1957, 364-368.

Larynx Physiology

BECKMANN, G. Experimentale Untersuchungen über den akustischen Einfluss der Larinxventrikel auf die Stimmproduktion. (Experimental investigations about the acoustic influence of the larynx ventricles on voice production). *Neunte Versamml. d. Deutsch. Ges. f. Sprach- u. Stimmheilkde*, 5, 1956.

The author acoustically filled the larygngeal ventricles with an appropriate mass and analyzed the frequency and volume of a tone before and during this procedure. The results show an acoustic influence both in the artificial larynx and the larynx "in vivo." Nearly all tone-frequency spectograms show a diminution in the partial range of the amplitude after the exclusion of the ventricles, so that the ventricles must normally have a tone-amplifying effect.

(*A. Dub*)

BERENDES, J. and LUCHSINGER, R. Stimmlippenschwingunen bei beiderseitiger sog. Posticuslahmung mit Arypexie. (Vibrations of the vocal cords in so-called bilateral posticus paralysis with arypexia.) *HNO, Berlin*, 6, 1956-57, 193-194.

According to Husson the vocal cords, obeying a central impulse, could vibrate at the intended frequency without a stream of air. Experiments of Hofer have shown that after severing the recurrent nerve the vocal cords immediately go into paramedian position. In such a paralysis of the recurrent nerve, vibrations at the intended frequency could not occur if Husson were right. The writers photographed the vocal cords of a patient with bilateral paralysis of the recurrent nerve, using a high-speed camera. After surgical removal of a goiter, the patient had had a 'bad voice' for one year. In the course of this year the voice improved, while breathing became so difficult that a tracheotomy had to be performed. Two weeks later arypexia was performed. Breathing was satisfactory and the voice

became better and better. The slow-motion pictures showed that the vocal cord on the side of the arypexia vibrated exactly in time with the other cord. These observations disprove the theory of Husson since the vocal cord on the operated side had, of course, changed its shape as compared with the other cord.

(*E. Froeschels*)

FLOYD, W. F., NEGUS, V. E. and NEIL, E. Observations on the mechanism of phonation. *Acta Otolaryng.*, 48, 1957, 16-25.

The mechanism of phonation has heretofore been explained with the aid of the tonic theory, which holds that pitch and volume are regulated by the coordination between tracheal air pressure and the degree of elasticity present in the thyro-arytenoid muscles. Of late some theorists have advanced the clonic theory which holds that the thyro-arytenoid muscles react to rhythmical nerve impulses, which determine the rate of vibration. To determine which theory is the more valid, the authors collected available experimental evidence on both sides. They conclude that the tonic theory best explains phonation despite the fact that it leaves certain points in doubt.

(*D. A. LaRusso*)

LUCHSINGER, R. Observaciones foneticas y estroboscopicas sobre un fenomeno vocal. (Phonetic and stroboscopic observations of a vocal phenomenon.) *An. Fonol. Audiol., Buenos Aires*, 2, 1957.

The author describes and analyzes a singer's voice with a range from 65 to 3960 cps. The accompanying tomograms show the extension and situation of the different laryngeal parts for the extreme low and high-pitched tones. The most high-pitched tones present purely sinusodial curves electro-acoustically. No harmonic overtones are observed. The author concludes that these high-pitched tones emitted in 'staccato,' which sound like whistles, are disharmonious tones, for which the larynx works like an ocarina.

(*A. Dub*)

VOSTEEN and SCHLOSSHAUER. Beziehungen des Stimmuskels zur Stimmlippe. (Relations between vocal muscles and vocal cords.) *HNO, Berlin*, 6, 1955-57, 185.

Observations of the larynx with the polarization microscope show very few cross fibers inserted into the margin of the cords. It is *possible* that such fibers can change the shape of the cords. There is no proof so far.

(*E. Froeschels*)

Loudspeaker Characteristics

NEELY, K. N., MACPHERSON, P. A. and THRASHER, D. B. A study of the speech transmission characteristics of loudspeaker equipment. Canada Defense Research Med. Lab., Proj. D77-03-20-06, Rep. 216-1, April 1957.

The speech transmission characteristics of two loudspeaker systems were evaluated using a single talker and fifteen listeners. The results of the evaluations indicate that the particular loudspeaker systems evaluated are inadequate for transmitting standard patter in aircraft cabins where the over-all level of the noise exceeds 105 db and the distance from the loudspeaker exceeds six feet.

It is recommended that an intercommunication system with headsets be employed for the transmission of all voice information. Under normal flight conditions loudspeakers can be used for the transmission of music if this is a requirement.

(*J. C. Webster*)

Malingering

SZASZ, T. Malingering: 'diagnosis' or social condemnation? *Arch. Neurol. Psychiat.*, 76, 1956, 432-443.

Masking

LICKLIDER, J. C. R. and GUTTMAN, N. Masking of speech by line-spectrum interference. *J. acoust. Soc. Amer.*, 29, 1957, 287-296.

'Two series of intelligibility tests were conducted. In the tests, speech was presented against a background of interference. The line-spectrum interference consisted of from 4 to 256 sinusoids, superposed in a linear adder. Three different spacings of the components in frequency, and several different distributions of power among the components, were studied. Tests with continuous-spectrum random noise were made for comparison.

'The over-all interference power required to reduce intelligibility to a given level de-

creases as the number of components in the interference increases. The drop is about 10 db in the decade from 4 to 40 components. Beyond 40, there is much less change. Even 256 components, however, mask measurably less effectively than random noise of equivalent power in the band 200-6100 cps. For a given number of components, the line-spectrum interference most detrimental to intelligibility has the same number of components in each frequency band of equal contribution to intelligibility, and its components are uniform in amplitude. The bearing of these findings on the theory of intelligibility and on procedures for predicting intelligibility from physical parameters is discussed.'

(*Authors' precis*)

SPIETH, W. Downward spread of masking. *J. acoust. Soc. Amer.*, 29, 1957, 502-505.

'Pulsed pure-tone audiograms were obtained in quiet and in the presence of narrow bands of noise centered at 500, 1000, 2000, and 4000 cps and at several levels. The masking produced at lower frequencies was of particular interest: The bands of noise at about 75 db/cy SPL produced from 12 to 24 db of masking at 100 cps and from 25 to 40 db of masking at frequencies between about 200 cps and the lower effective limit of the band of noise.' The author feels that aural distortion is responsible for this masking of low tones due to the production of specific combination tones of low frequency in the ear.

(*P. A. Yantis*)

Mental Retardation

FERRIE, M. W. The approach to treatment of children with delayed speech development resulting from mental retardation. *Speech*, 21, 1957, 17-23.

Goals and some specific techniques are presented for developing speech in severely mentally retarded children. The suggested therapeutic sequence is: (1) improving general co-ordination, (2) teaching visual and aural discrimination, (3) associating word with action or object, and (4) establishing speech as a means of expression and communication.

(*A. J. Berlin*)

GOERTZEN, S. M. Speech and the mentally retarded child. *Amer. J. ment. Def.*, 62, 1957, 244-253.

The author cites leading studies dealing with the relation of mental retardation to speech and suggests on the basis of these materials the general lines the teacher and therapist should follow in attempting to improve the speech of children who are low in intelligence.

(*B. B. Schlanger*)

Nasality

RENFREW, C. E., MITCHELL, J. C. E. and WALLACE, A. R. Listening. *Speech*, 21, 1957, 34-36.

Three experienced therapists independently classified fifty recordings into five types of nasal resonance. Inter-judge and self-agreement were very poor. Possible reasons for this disagreement are listed. Subsequent listening training and the removal of the mixed nasal resonance category improved agreement markedly. The authors conclude that perfect agreement in this type of judgement is not possible, but that a strict examination of listening standards is professionally necessary.

(*A. J. Berlin*)

Noise

BERANEK, L. Office noise studies at Hill Air Force Base. WADC TN 56-58, August, 1956.

Fifteen rating scales of the effects of noise on work, *etc.*, were administered to 190 people, and physical noise measurements were made. High correlations were found between 'noisiness' and speech interference level (average sound power level in 3 octave bands between 600 and 4800 cps), and between 'noisiness' and computed loudness level.

(*J. C. Webster*)

CLARK, W. E., PIETRASANTA, A. C., GALLOWAY, W. J. and THE STAFF OF BOLT, BERANEK, AND NEWMAN, INC. Noise produced by aircraft during ground run-up operations. WADC Tech. Note 56-60, June 1957.

'Measurements of the noise field around six turbojet aircraft (T33-A, F89-D, F84-G, B-57, F84-F and F86-D) and one propeller aircraft (C-124) during ground run-up operations are reported. Sound pressure levels in octave bands of frequency have been obtained for different operating conditions of the aircraft engines, at distances ranging

from 100 to 1600 ft. These data are analyzed and the results reported in terms of acoustic power level, directivity, and noise spectra. An empirical procedure is described for making engineering estimates of the characteristics of the noise field produced during ground run-up operations of jet aircraft.'

(*Authors' precis*)

JERISON, H. J., CRANNELL, C. W., and POWNALL, D. Acoustic noise and repeated time judgments in a visual movement projection task. WADC Tech. Rep. 57-54, Proj. 7193-71614, March 1957.

'Two hundred volunteer male students, working individually, were required to follow a moving target visually and to imagine the continuing movement of the target after it disappeared. When the target was believed to have reached a crosshair, the subject squeezed a trigger. The task was repeated ten times. The effect of different acoustic noise programs on the accuracy of judgment was assessed. The performance measure was judgment time, the interval between the disappearance of the target and the subject's response. It was found that a noise program in which it was quiet (78 db) during the visible portion of the target's course and noisy (110 db) when the target disappeared gave longer judgment times relative to those obtained under control conditions of quiet or noise throughout. The opposite program of "noise then quiet" was not differentiated from the control conditions. It was also found that judgment times became longer in succeeding trials under all four noise programs.'

(*Authors' precis*)

Perception of Sound

BRESSON, F. La signification d'éléments sonores ambigus. (The meaning of ambiguous sonorus elements.) *Année Psychol. Paris*, 2, 1954, 367-376.

The author feels that the interpretation of a sequence of noises varies according to whether or not it is preceded by a title and whether the subjects can see or are blind.

(*A. J. Sortini*)

FRAISSE, P. and OLERON, G. La perception de la durée d'un son d'intensité croissante. (Perception of the duration of a sound of increasing intensity.) *Année Psychol., Paris*, 1, 1950, 327-343.

The author is interested in whether or not the intensity of a sound influences its apparent duration. Although it has not been directly verified, he feels it has been established that a loud sound of short duration can be judged equivalent in duration to a weaker sound of longer duration. This principle may be applied more directly to experiments employing the hypothesis that at unequal intensity and at equal duration, the less intense sound appears to be shorter.

(*A. J. Sortini*)

Pharyngeal Physiology

KEOGH, C. A. The neurology and function of the pharynx, and its powers of compensation in paralysis. *Ann. Otol., etc.*, 66, 1957, 416-439.

Pitch Discrimination

KÖNIG, E. Effect of time on pitch discrimination thresholds under several psychophysical procedures; comparison with intensity discrimination thresholds. *J. acoust. Soc. Amer.*, 29, 1957, 606-612.

'This paper presents a study of the effect of inter-stimulus interval on pitch discrimination in the cases of five different psychophysical procedures. All the experiments described for pitch discrimination were carried out at a constant sound level of about 40 db above threshold, the mean reference frequency being 1000 cps. From the experimental data it appears that, irrespective of the method used, the mean over-all performance of the subjects in pitch discrimination deteriorates only slightly as the inter-stimulus interval increases from 1.25 to 5 sec. In order to stress the large discrepancies among the performance of the listeners, the data for each subject are reported with special care. The effect of stimulus duration on pitch discrimination is briefly discussed.'

(*P. A. Yantis*)

Poliomyelitis

BOSMA, J. F. Residual disability of pharyngeal area resulting from poliomyelitis. *J. Amer. med. Assn.*, 165, 1957, 216-221.

Based on standardized clinical and roentgenographic procedures used with 33

child and adult patients, the discussion covers pharyngeal problems following bulbar poliomyelitis. Areas of investigation include specific motor disabilities of the tongue—hyoid—larynx column, of the food delivery system, of the palatopharyngeal isthmus of the hypopharyngeal sphincter, and of the pharyngeal constrictors. The role of the speech correctionist in the total rehabilitation pattern is discussed.

(*W. L. Thurman*)

BARSKY, P. and LAUER, R. Tonsillectomy and the risk of poliomyelitis. *Canad. med. Assn. J.*, 77, 1957, 576-578.

The authors analyze 1170 questionnaires returned by patients (or heads of their families) who had contacted some form of poliomyelitis in 1953. All cases had been reported to the Manitoba (Canada) Department of Health and Public Welfare. Statistical treatment of the data is said to reveal that (a) "...persons with bulbar and bulbo-spinal poliomyelitis are more likely to have had their tonsils removed than those with the spinal or non-paralytic forms," and (b) " . . . there is a greater incidence of tonsillectomy *in all forms of poliomyelitis* than in the family controls who do not develop the disease."

(*J. L. Shapley*)

Prosody

MONRAD-KROHN, G. H. The third element of speech: prosody in the neuropsychiatric clinic. *J. Ment. Sci.*, 103, 1957, 326-331.

Prosody is described as the oldest of the three fundamental elements of speech (before vocabulary and grammar), consisting of variations in pitch, stress and rhythm. Prosody is said to convey meanings and shades of meaning, and develops from early childhood. Prosodic grunts often play a role in determining a 'good' listener and their loss, as in paralysis agitans, may lead to the incorrect assumption of dullness, reserve or hostility. Prosodic disturbances are grouped under hyperprosody, disprosody and hypo- or aprosody, with possible clinical applications. Localization problems are considered briefly.

(*A. J. Berlin*)

Psychotherapy and Psychiatry

FREDMAN, A. M., HELME, W., HAVEL, J., EUSTIS, M. R., RILEY, C. and LANGFORD, W. Psychiatric aspects of familial dysautonomia. *Amer. J. Orthopsychiat.*, 27, 1957, 96-106.

This report describes a methodology utilized to study psychiatric aspects of familial dysautonomia. The results discussed include: (1) the child with familial dysautonomia most clearly resembles the child suffering from diffuse organic brain disorder, (2) the difficulty is identifiably different from schizophrenia, (3) the child so affected is involved in a vicious circle with parents, (4) the self-concept involves an image characterized by awareness that the disability is unique, that it causes the parents great trouble and disappointment, and that it results in some loss of control over one's body, and (5) as the child grows older, he appears to become more rigid and over controlled.

(*F. Robinson*)

MINTZ, E. E. Personal problems and diagnostic errors of clinical psychologists. *J. proj. Tech.*, 21, 1957, 123-128.

SHIRK, E. U. The client and the student. *J. gen. Educ.*, 10, 1957, 161-174.

SIGEL, I. E., HOFFMAN, M., DREYER, A. S. and TORGOFF, I. Influence techniques used by parents to modify the behavior of children: A case presentation. *Amer. J. Orthopsychiat.*, 27, 1957, 356-364.

Sound Localization

SANCHEZ LONGO, L. P., FORSTER, F. M. and AUTH, T. L. A clinical test for sound localization and its applications. *Neurology*, 7, 1957, 655-663.

The literature on sound localization is reviewed and the functional anatomy responsible for the neurologic mechanisms of sound localization is described. Two series of observations of normal individuals under different conditions are reported and the results discussed. Five cases of temporal lobe lesions were studied for their ability to localize sound. All of the cases were found to have impairment of ability to localize sound in the contralateral auditory fields. The role of the temporal lobe in sound localization and the possibilities of this test are discussed.

(*B. S. Street*)

WALSH, E. G. An investigation of sound localization in patients with neurological abnormalities. *Brain*, 80, 1957, 222-250.

Studies which have been done with animals and humans on the localization of sound are discussed. Lateralization of sound was studied by observing retention of auditory local sign, binaural time differences, precedence and phase differences, binaural intensity differences and vertical localization ability. Patients with known neurological lesions were compared with similar studies done with normal individuals. The author found that sensitivity to binaural time differences is retained after the loss of the auditory cortex on one side. The ability to localize sounds in a vertical plane may be lost while localization in a horizontal direction remains possible.

(*B. S. Street*)

Speech Therapy

COURT, D. Children, doctors and speech therapists. *Speech*, 21, 1957, 3-6.

The author describes a variety of attitudes about children-patients, doctors and the role of speech therapists. Speech correction services should be developed only after assessing needs. A primary responsibility is the extension of knowledge largely through encouraging university sponsored research. Responsibilities to the patient include respect for the child and also his parents, who have the ultimate responsibility for his welfare. The speech therapist should foster collaboration with doctors who may not be easily interested in speech problems.

(*A. J. Berlin*)

ENGLISH, R. H. Speech therapy and speech improvement. *West. Speech*, 21, 1957, 211-215.

The author describes a speech correction program which is believed to provide for maximum utilization of the speech therapist's time in a public school setting. Daily and weekly schedules are based on a plan of rotating blocks of time among five schools.

(*M. Reed*)

SHAMES, G. H. Some factors and conditions for successful group therapy for adults. *Pennsylvania Speech. Ann.*, 14, 1957, 18-23.

Group speech therapy is said to contribute to certain therapeutic processes not found in individual speech therapy, while both types have their value and greatest success in a combined approach. Certain factors present at admission to therapy consistently influenced success, with considerable individual variation: motivation, intelligence, compatibility with group, general emotional adjustment. Homogeneous groupings were most successful. Also discussed are the influences of amount of therapy, residence and development of a real-life atmosphere.

(*A. J. Berlin*)

WEST, M. A plateau vocabulary for speech. *Language Learning*, 7, 1956-57, 1-8.

The method of combining speech with reading in teaching speech to those from other countries is discussed and the suggestion is made that speech learning might be more effective if the process were divorced from reading. The author further suggests helping the foreign student first acquire a Plateau Vocabulary—'The smallest and most economical instrument whereby one can use the language as a living thing.'

(*F. Robinson*)

Speech Therapy in Schizophrenia

JANSKY, J. J. Language therapy for a disturbed child. *Speech*, 21, 1957, 7-16.

Speech therapy with a seven year old mild schizophrenic is discussed. There is a detailed description of her behavior, coordination, speech and thinking disorders.

Therapy was directed at improving control through building up of defences and boundaries within an atmosphere of protective warmth and affection rather than release. By the end of two years there was significant speech improvement and some adjustment to the underlying process.

(*A. J. Berlin*)

Stuttering

ADLER, S. A test of stutterers' attitudes regarding humor about 'the handicapped.' *Southern Speech. J.*, 22, 1956, 79-84.

An attempt is made to determine if there is any difference in the attitude of stutterers and non-stutterers toward humor involving handicapped persons. Twenty-three

stutterers and twenty-three non-stutterers rated twenty-one recorded jokes, fifteen of which concerned stutterers, the others concerning other handicaps. Tabulation of the five-point scale employed revealed no significant difference in the way the two groups rated the jokes about stuttering, nor in their ratings of jokes about handicaps in general. It is concluded that these results 'may mean that most stutterers are not so lacking in objectivity as has frequently been supposed.'

(*B. A. Landes*)

BEEBE, H. H. Practical aspects of chewing therapy. *Folia Phoniat.*, 8, 1956, 107-117.

FREUD, E. D. What causes stuttering? *Acta Psychiat. Neur. Scand.*, 32, 1957, 137-150.

Scientific constellations which have influenced the theories as to the cause of stuttering are discussed. One hundred years ago stuttering was believed to have resulted from a pathological or constitutional deficiency. With the beginning of the century the importance of psychologic factors in the development of stuttering was stressed. Recently the cause of stuttering has been attributed to the parent's attitude toward the child. The author observes that this tendency to blame the parents coincides with the social attitude of second-generation Americans in this country who look upon first generation Americans as being less desirable. The author postulates that a scientific theory had to be developed to sanction this attitude.

(*B. S. Street*)

MADISON, L. An heuristic classification of stuttering. *Percept. mot. Skills*, 6, 1956, 21-24.

TONN, M. The stuttering child. *Amer. Childh.*, 43, 1957, 22-23.

Teaching the Deaf

BINDON, D. M. Personality characteristics of rubella deaf children: implications for teaching of the deaf in general. *Amer. Ann. Deaf*, 102, 1957, 264-270.

BIRCH, J. R. Need for flexibility in education of the deaf. *Pennsylvania Speech Ann.*, 14, 1957, 13-17.

Planned flexibility is needed in criteria for admission to schools for the deaf, special nursery school placement and transfer to regular schools. The types of experience needed by the pre-school deaf child are discussed. Successful transfers to regular schools are more often made in primary grades or high school level.

(*A. J. Berlin*)

BOATNER, M. T. Vocational education under the Gallaudets. *Amer. Ann. Deaf*, 102, 1957, 300-311.

This article consists of an historical discussion of the vocational teaching practice at the Gallaudet school for the deaf.

(*C. N. Hanley*)

BRANDON, W. R. Foreign language study and the deaf student's vocabulary. *Amer. Ann. Deaf*, 102, 1957, 312-318.

This article describes the aims and goals of the study of foreign languages in a college for the deaf. The author remarks that, '. . . though he works first of all to give his students a good knowledge of another tongue . . . he also effects much improvement in the student's English.'

(*C. N. Hanley*)

DOANE, R. C. Suggestions for improving vocational training. *Amer. Ann. Deaf*, 102, 1957, 356-358.

NEWMAN, L. Meaningful mathematic problem work for the deaf. *Amer. Ann. Deaf*, 102, 1957, 293-299.

The author calls attention to the complex problem of instructing the deaf child in the principles of mathematics and gives a number of suggestions regarding teaching practices in our schools for the deaf.

(*C. N. Hanley*)

Threshold for Short Tones

HARRIS, J. D. Peak vs. total energy in thresholds for very short tones. *Acta Otolaryng.*, 47, 1957, 134-140.

This experiment is concerned with '. . . determining the relation between threshold sensitivity and several physical aspects of brief sine waves.' These aspects include total energy, total utilizable energy, peak energy, etc. Subjects were asked to react to a self-initiated tone burst by adjusting an attenuator until the tone could be heard

'about 50 per cent of the time.' During another phase of the experiment, each subject was asked to adjust the attenuator until he insured the perception of every other tone burst administered by the experimenter. Stimuli varied in duration among 60, 100, 200 msec with the rise-fall times at 5, 25, or 50 msec. The author concludes that, although 'a direct dependence of auditory thresholds for very short tones upon the peak energy' exists, the *important* physical characteristic of the stimuli remains unknown.

(*D. A. LaRusso*)

Tooth Position

POUND, E. Recapturing esthetic tooth position in the edentulous patient. *J. Amer. dent. Assn.*, 55, 1957, 181-191.

The author employs phonetic tests to assist in the determination of the proper vertical dimension, and in the positioning of the anterior teeth in the construction of complete artificial dentures. Three verses of Kipling's poem 'If' are presented to the patient who is instructed to read them several times rather quickly. The separation between the edges of the occlusal rims when the letter S is being unconsciously repeated is noted and is used as one of the guides in establishing the vertical dimension. The same verses are used to determine, and check, the positioning of the maxillary anterior teeth by noting the relationship of the incisal edges of the upper teeth to the lower lip in the pronunciation of the sounds V and F. In addition, it is also used to determine the adequacy of the clearance between the incisal edges of the upper and lower teeth for the tip of the tongue when the TH sounds are made.

(*A. K. Kaires*)

Traumatic Hearing Loss

PALVA, T. Occupational deafness in telephone exchange workers. *Acta Otolaryng.*, 47, 1957, 510-519.

Studies were carried out on the effect of telephone alarm signals of the order of 130 db on the hearing of persons employed for transmitting from and to the city of Turku. Of the 139 employees employed in the communication department, 19 persons, or 13.7 percent, were found to have a dip-type hearing loss exceeding 20 db, mainly in the area between 1500 and 4000 cps. This corresponded well with the type of receiver used by the employees: the main emphasis of amplifying was on the low tones with an extra peak before 1000 cps.

(*D. A. LaRusso*)

Visual Memory in the Deaf

BLAIR, F. X. A study of the visual memory of deaf and hearing children. *Amer. Ann. Deaf*, 102, 1957, 254-263.

The hypothesis that the visual memory of children severely deaf from early life differs from that of normal hearing children was tested, utilizing a test battery composed of the following: The Knox Cube test; Memory-for-Designs; an Object Location test; and four memory span tests. Statistical analyses show that the deaf group performed significantly better on the Knox Cube test and Memory-for-Designs test but poorer on memory span tests. The author calls attention to the need for capitalizing on those visual tasks in which the deaf child seems superior and to take account of the limitations exposed by memory span tests.

(*C. N. Hanley*)

News And Announcements

To ASHA Members:

These columns are designed to keep members of ASHA and readers cognizant of major changes, meetings, programs, clinical and research assistantships and fellowships in our areas and related fields. To that end the staff of News and Announcements will bring together, sort and sift, and finally edit information sent by members.

We are trying a reorganization of committee members, as suggested by the Editor of the *Journal*, based on levels of interest and on subject matter rather than predominantly on a geographical division of personnel. The following persons have agreed to assist in collecting items related to the interest indicated: Richard Brett, International and National; Martha Black, State; Laura Wright, University and College, including Summer Programs; Helen Knight, Elementary and High School; Katrina de Hirsch and Ronald Tikofsky, Clinical Programs (other than university and college); Hayes Newby, Audiology; Charles Hutton, Equipment and Materials; Louise Scott, New Materials in Elementary Schools. The items received will be classified into sections on Significant Trends; Programs and Projects; Meetings; Assistantships and Fellowships; Equipment and Materials. The former section on Personals has been deleted because it seemed important to shift the emphasis to the description and accomplishment of programs and projects, thus including the directorship or management; furthermore, the limited space allotted to this column would not permit the inclusion of every personal item received from the large membership of ASHA.

It is not our intention to issue an arbitrary directive about the sending of material to specific persons, but we are hopeful that members will swing into our rhythmical orbit for general efficiency. Deadlines for news items occur some three months before the issue is published. Every effort will be made to include pertinent information for which the time element is crucial, such as summer programs, assistantships, *etc.*, as long as the completed column has not been sent to the printer. We shall also welcome comments from members indicating significant trends in the profession as noted from research, meetings, certification, licensing, projects and equipment.

SEVERINA NELSON

Significant Trends in the Professions

Some startled, some anxious, and some enthusiastic listeners made up the group to whom Virgil Anderson proposed a new degree, clinically oriented, at the November convention. This degree was tossed about with a great deal of speculation as to its name, its place among the time-honored M.A., M.S., and Ph.D. It was evident that its proponent was interested primarily in giving those with extensive clinical experience an opportunity to get recognition other than certification for their particular skills—especially those who might not choose to follow the path of Ph.D. study.

For those who opposed vigorously any innovation, the 'Report of the Committee on Policies in Graduate Education from the Association of Graduate Schools' may offer further cogitation in the direction of the Ph.D. The committee, composed of J. Barzun, J. P. Elder, A. R. Gordon, and Chairman M. E. Hobbs, Deans of the Graduate

News and Announcements is edited by Severina Nelson, University of Illinois, assisted by the following committee: Richard Brett, Waukegan Township High School; Martha Black, State of Illinois Office of Public Instruction; Laura Wright, Alabama College; Helen Knight, Evanston Township High School; Katherine de Hirsch, Columbia Medical Center; Ronald Tikofsky, Fort Douglas Veterans Administration Hospital; Hayes Newby, Stanford University; Louise Binder Scott, Los Angeles State College and Charles Hutton, University of Illinois.

Schools at Columbia, Harvard, Toronto, and Duke Universities respectively, has issued a six-page abstract, reminiscent of Barzun style, of their study of graduate policies. The first paragraph is bold and challenging:

> 'We face a starkly pressing demand for Ph.D.'s on all sorts of fronts—for college teachers, scientists, government experts, business consultants, and for no end of other purposes. What are we in the graduate schools going to do about tightening up our programs and requirements for this critical degree, which now seems to offer nearly as many services as the A.B. itself? Current pressure forces us to examine our myth-enveloped Ph.D. with candor. What we see makes us look away with shock: for compare our Ph.D. programs with the professional programs in law, medicine, or business. We must ruefully conclude that the Ph.D. is tortuously slow and riddled with needless uncertainties; that it is frequently inefficient and traumatically disagreeable to the bewildered and frustrated candidate. The basic flaw is: we have never clearly *defined* this protean degree.'

Uncertainties seem almost insurmountable as related; the Ph.D. is not a professional degree, as are those offered in law and medicine. Rather it is an individual matter between student and master, and therefore filled with unpredictable elements such as (1) the kind of profession expected to be followed, (2) the time element, (3) the financial insecurity while spending not four, but sometimes as much as ten years in study, and finally, (4) the end-use of the product. The committee finds that many a man is '*less* mature, *less* self-poised, and *less* confident after two years in a graduate school than he was as an inspirited college senior!' The second-year man often 'emerges a puzzled fellow indeed' and begins to 'mistrust the yardstick by which progress is measured.' Furthermore, in preparing for the general examinations, how much time should the candidate devote to these 'ill-defined and sprawling areas?' And once 'Scylla is somehow desperately skirted, what of the Charybdis of the thesis?' The one solution is to 'make the thesis a long one, cram it with learned footnotes and keep your own feelings and taste out of it.'

These uncertainties can be removed by giving thoughtful consideration to the 'emerging Ph.D.' who is too often 'spiritually dried up,' 'wrung dry,' and not an '*educated* man'; but more likely a 'sort of expert plumber in the card catalogues,' unable to 'throw off this inhibiting heritage.' The 'make-believe' element—namely that the degree gives him acceptance as one who '*can* investigate and *can* write and *can* lecture' —must be rooted out, and in its place one must put 'rigor and realism.' The Ph.D. implies a 'highly technical ability' and 'taste and skill in the art of written and oral communication.'

The committee continues constructively by offering a specific plan on time of residence, admission requirements (one of which is to '*write respectable English*'), the importance of advising, the preparation through appropriate orientation seminars, qualifying examinations and the thesis, which 'should be a modest *specimen eruditionis*,' and above all, not of 'fantastic bulk.'

The A.M. is scrutinized also. Consideration of this 'venerable degree' as a degree in its own right rather than a 'quick degree' is recommended. Urgency is requested in 'defining and tightening the Ph.D. program' and in 'rehabilitating the A.M.,' for 'doctors and masters will be called for in the next decade with a resistless intensity.' The committee concludes:

> 'If we continue to allow—nay encourage—men to remain in graduate schools for eight or ten years while amiably working toward the nebulous Ph.D., we shall fail to meet the demand for trained minds. If we permit a large number of A.M.'s to represent nothing more than "consolation prizes," we shall do worse. Others will step in to supply the market, and to predict what kind of degrees will then emerge calls for no prophet.'

The President's Committee on Education Beyond the High School, chaired by Devereux C. Josephs, has made its final report to President Eisenhower. A first Interim Report, November, 1956, stated the broad guidelines of the proposed study; the Second Report, July, 1957, which was sent to over 100,000 leading laymen and educators, contained a definitive statement on the principal issues; the Final Report, based on reactions received from editorial comment, news coverage and individual correspondence concerning the Second Report, in-

cludes an addendum of State follow-up plans based on recent information from forty-six states and Hawaii. Governors of these territories are planning follow-up activities consistent with the Report and the needs of their local communities for post-high school education.

To implement further, 'the Secretary of the Department of Health, Education and Welfare, Mr. Folsom, has appointed a Task Force under the chairmanship of Dr. Derthick, Commissioner of Education, to study the implications of the Second Report and recommend necessary action; educational associations and individual leaders in the educational world are also closely studying the implications of the Report; certain foundations are examining the possibilities of action in those areas which come within their scope and interest.'

The necessity for recruitment plans is becoming more critical with the demand for trained speech and hearing therapists. The November issue of *The Ohio Speech and Hearing Therapist* places the responsibility for interesting career-minded high school seniors on those who are 'actively working in the field.' The Illinois Chapter of ICEC recently planned a three-hour program in Springfield, Illinois, on 'What Have We Done to Recruit Speech Correctionists?' Frank O'Neal, Director of Teacher Recruitment, Office of Public Instruction, Springfield, Illinois, served as moderator for discussions concerned with recruitment via the use of newspapers, radio, film, television, personal interview, publicity in high school classes, observations in university clinics, college groups, county organizations, and service groups. A unique foursome of student speech correctionists from the University of Illinois related in their own inimitable manner the pros and cons concerning their professional training (suitable for high school audiences). One might add that the good will and inter-relationship which should exist between speech correction and classroom programs in the schools will form the firmest foundation for growing interest in this profession.

From the *Special Education Newsletter*, November, 1957, sent out from California's State Department of Education, comes the announcement that a Technical Resource Committee will be recruited by the Bureau of Special Education, directed by Ernest P. Willinberg. 'Frontier thinking' and 'constructive recommendations' are urged to 'engineer some new roads' leading to (1) extension of services; (2) improvement in quality of offerings; (3) smoother articulation between groups interested in the education and general welfare of exceptional children. Special attention will be given to the neurologically handicapped and to the aphasic child; grants will be sought to encourage exploration of the mentally gifted, mentally retarded, and emotionally disturbed; reorganization of plans will be studied.

The State of California has recently given school districts the authority to provide (1) individual speech correction at schools for speech handicapped minors, beginning at three years of age; (2) speech correction for physically handicapped and also mentally retarded pupils enrolled in special classes and schools.

The Ohio Speech and Hearing Therapist, November, 1957, features an address, 'Speculations on Stuttering,' given by Dr. Robert West to the members of the Ohio Association. A brief review indicates that Dr. West is speculating with 'maleness' and 'immaturity' of the stuttering phenomena, hypothesizing that 'maleness in itself is the immaturity.' According to the speaker, an endocrine incompatibility between the male child and the expectant mother is apparent: reproduction accidents are considerably higher with males than females; expectant mothers quite frequently experience discomfort and pessimistic attitudes when carrying a male; there are significantly more male stillbirths. Stuttering develops, Dr. West suggests, 'because the child is not ready to accept the rate and rhythm and complications of speech.' Girls, who apparently do not experience this endocrine disbalance, are able to meet social pressures more readily; they also show a lower threshold of convulsions than do boys.

The 1957 legislature of the State of Illinois has amended the law governing state financial aid to school districts having approved programs in the education of exceptional children. A district employing a qualified speech correctionist will now receive a $3000 subsidy for each teacher. A

like amount is given for professional workers in other approved special education programs. School boards in Illinois may enter into a Joint Agreement to establish these special programs. Several adjoining districts may provide the needed facilities, employ a director and other professional workers; or one district under the Joint Agreement may employ the director or other professional workers and be reimbursed by the other involved school systems.

At the ASHA convention, Cincinnati, Ohio, state directors of speech correction met informally and discussed ways by which they could establish more effective lines of communication among themselves. They were joined by Dr. Romaine Mackie of the United States Department of Health, Education and Welfare. She indicated that her office might offer some leadership in bringing the various state departments closer together. This unity of direction, if effected, would give state directors a chance to equalize differences in certification requirements, gain support for legislative programs, strengthen supervision in practice teaching in the schools, and plan unified recruitment.

Apropos of the decision reached in the case of Scalia versus The American Progressive Health Insurance Company comes a letter from Franklyn Elliott to Fellow Speech Therapists:

> 'I would like to call your attention to the recent decision in the case of SCALIA VERSUS THE AMERICAN PROGRESSIVE HEALTH INSURANCE COMPANY, which involved the services of a speech therapist. The report appeared in the June Issue of the *Journal of Speech and Hearing Disorders.* It involved, you may recall, the services of a speech therapist in the treatment of of a polio (bulbar) child. The court rendered a verdict directing the insurance company to pay for the speech therapist's services. The trial court decided that the speech therapist's services "originated with and were directed by the physician, a necessary extension of his treatment, under his personal observation, supervision and consultation."
>
> 'It is unfortunate that the court based its decision on this kind of reasoning. The impression is that it was the physician who (1) decided speech therapy was needed and (2) supervised the speech therapist's treatment and (3) believed speech therapy would help the child's condition.
>
> 'Further, the court ruled "the speech therapy was a necessary extension and indivisible continuation of his treatment . . . ."
>
> 'Clearly, it seems, the court felt that the physician could decide when another skill was needed, recommend that skill, supervise it, control it as part and parcel of his own work. This then relegates speech therapy to a prescription level, subservient and ancillary to medical practice. This is a very important and serious decision.
>
> 'To allow the courts to retain the false notion that the above is a correct interpretation of professional practice would be unfortunate on our part. It was and should have been the speech therapist's task to make the decision regarding speech therapy; to prescribe her own treatment, work out the program in her own way and perhaps report to the physician, if necessary.
>
> 'If this was a "joint" treatment venture it should have been stated explicitly regarding this one case, and the possible fact of the physician's knowledge of the field ought to have been made public. One gets the impression that this is the general rule, which it is not.
>
> 'Speech therapy is not an extension of any medical practitioner's services, nor is it an integral or indivisible part of medicine or any other field. We have worked hard for many years to establish the profession as an independent one, with a professional organization, laws, certificates and adequate graduate training and supervision.
>
> 'It would be sad indeed if such a court decision were allowed to go unchallenged and without some light being shed on the facts of the profession. I am sympathetic with the therapist's desires to have the insurance company pay the toll, but unsympathetic to allowing the court to receive the impression it did get. It would have been a brighter day at the convention if she had lost the case, rather than relegate the field and her own work to the role regarding medicine that the courts implied.

'It took the field of clinical psychology many long and bitter years of struggle with medicine and psychiatry to establish its independence and autonomy and rights. A step in the right direction by our President and Association may save us many headaches in the future.

'May I suggest a flow of letters to: Jon Eisenson, Ph.D., President, ASHA, Queens College, Flushing, New York; Robert West, Ph.D., Editor of the Association, Speech Clinic, Brooklyn College, Brooklyn, New York; Leo G. Doerfler, Ph.D., Department of Audiology, University of Pittsburgh, Pittsburgh, Pennsylvania; Franklyn Elliott, Speech Therapist, 110-13 206th Street, Hollis, New York.'

For the first time in ASHA history, the use of closed-circuit television in the observation of clinical techniques was used at the November, 1957, convention. From the enthusiastic reception of the program 'Practical Management of Voice Disorders,' this type of audience observation will be a professional 'must' in future meetings.

Audiences in four different rooms observed conferences, diagnostic procedures, and therapy by way of a closed-circuit television from a nearby room. Following each presentation, the diagnosticians and therapists returned to the observation rooms and discussed the problems encountered.

This realistic program was made possible without cost to ASHA by the Diamond Power Specialty Co. of Lancaster, Ohio. If any educational institution is contemplating the use of closed-circuit TV, the D.P.S. Co. would be able and willing to give advice and assistance.

Programs

A research study concerning the basic voice variables of pitch, intensity and rate has been completed at the Muscatatuck State School for the Mentally Retarded. M. D. Steer and A. B. Drexler, who conducted this study, expect to have speech norms available as soon as the data are analyzed.

A brochure from the Division of General Education, New York University, describes the *English Language Program for International Students* under the direction of Grant E. Taylor. Both day and night classes on all levels are offered. Among the courses are *Practice in Speaking English, Grammar and Structure of American English, Pronunciation of American English, Phonetics of English Speech, Pre-University Course in American English and Orientation* and *Meet the U.S.A.—The Land and Its People.* Address: Division of General Education, One Washington Square North, New York 3, New York.

California reports 19 mobile hearing units in operation: 14 are operated by counties and 5 by school districts.

The Psychology-Speech Clinic of George Pepperdine College, Los Angeles, California, announces the inauguration of post graduate courses in Electroencephalography: the beginning course deals with the history and practical aspects of EEG; the advanced course is concerned with specific application of techniques and interpretation of EEG records. In each course, practical experience will be gained not only with the machine in the EEG laboratory located in the Clinic, but also with those in hospital environs.

The Hearing and Speech Clinic of the University of Alabama Medical Center, Birmingham, is beginning its second year of operation under the co-directorship of Robert E. Roach, Audiology, and John E. Paul, Speech Pathology. The Clinic, which functions as a diagnostic and service clinic in the Department of Otolaryngology, is supported by the Alabama Foundation for Hearing and Speech, Birmingham Rotary Club, and Society for Crippled Children and Adults; it also receives a large grant on a matching basis through the Alabama Office of Vocational Rehabilitation.

The Fourth Postgraduate Course in Esophageal Speech and Organic Voice Problems will be held June 16-27, 1958, under the direction of Nathaniel M. Levin, M.D., at the University of Miami School of Medicine, Coral Gables, Florida. Speech pathologists and therapists, and also specialists in otolaryngology, physical medicine and rehabilitation are eligible to apply. Government traineeships valued at $250 each (tui-

tion and traveling expenses) are available. Address: Dr. Homer F. Marsh, Dean, University of Miami School of Medicine, Coral Gables, Florida.

In order to stimulate further interest in the field of Audiology, the Veteran's Administration is offering during the summer of 1958 an Audiology Trainee Program, which was reactivated in the summer of 1957.

Place: Veteran's Administrative Audiology Clinics at Washington, D. C.; New York, New York; Chicago, Illinois; San Francisco, California; Los Angeles, California. The twelve selected candidates assigned to Washington, New York and Chicago will receive four consecutive weeks of training at each of these Clinics; the eight assigned to San Francisco and Los Angeles will receive six consecutive weeks at each of these Clinics.

Study: Emphasis will be placed on pure tone, galvanic, speech, and delayed side tone audiometry, communication skills, and selection and fitting of hearing aids.

Time: Program requires twelve five-day, 40-hour weeks, for completion.

Staff: Teaching by Clinic staffs; lectures by Consultants in Acoustical Audiology: Leo G. Doerfler, John Gaeth, William G. Hardy, Claude S. Hayes, John W. Keys, Frank M. Lassman, Kenneth O. Johnson, Hayes A. Newby, Raymond T. Carhart, Bernard M. Anderman.

Facilities and Funds: Twenty trainees will be selected; those who have completed their junior year will be paid about $68 a week during training; those having completed their senior year will receive about $76 a week during training. All expenses of travel and personal maintenance must be borne by the trainee.

Applications: Two completed applications for Federal Employment, SF-57 (obtainable at post offices), a recommendation from candidate's major professor, and finally, a statement of his reasons for being interested in being considered for this program, as well as his preference for assignment to either the Eastern or Western phase, must be mailed in time to be delivered to Washington, D. C., on or before Monday, March 31, 1958. Address: Dr. G. Donald Causey, Chief, Acoustical Research Audiologist, Veteran's Administration, Veterans Benefits Office, 20th and Constitution Avenue N.W., Washington 25, D. C.

Western State College of Colorado, Gunnison, Colorado, has announced a short course in Speech Correction Principles to be conducted by Charles Van Riper, Ph.D., June 23 to July 3, 1958.

Announcements

The new Stanford Rehabilitation Center, in which the Division of Speech Pathology and Audiology will be housed, is scheduled for completion by January, 1959. The three-story Center, which is a unit of the multi-million dollar Stanford Medical Center on a 56-acre site, will consist of three hospitals and four Medical School buildings interconnected around open courtyards and patios to form a 'garden hospital.'

Children of needy families may receive free hearing aids from the Sonotone Corporation through their Gifts to Needy Children Program in 1958. Application should be made through the Sonotone Office nearest the child's residence.

Gallaudet College for the Deaf, Washington, D. C., has been given accreditation status in the Middle States Association of Colleges and Secondary Schools by the Association's Commission on Institutions of Higher Education. Admission of graduates of Gallaudet College to programs in universities and colleges will now be facilitated.

Recognition should be given to an unscheduled demonstration given by Dr. Kurt Tschaissny, Cincinnati College of Medicine, during the Cincinnati convention. Fortunate were those who by chance grouped themselves around this great professional lecturer, formerly from Vienna. Sitting on the edge of their chairs, the fascinated group watched nimble fingers manipulate some six dead larynges, and, with the aid of a stream of compressed oxygen, produce vibrations which, although weird, approximated identification. Here indeed was a master-teacher with his inquiring students about him! Those who were there discovered how sincerity, sensitivity, and deep interest could be combined in a learning and

a dramatic experience seldom found in the seminar or laboratory. Dr. Tschaissny concluded by suggesting that pitch and intensity studies could appropriately follow his experiments in this area.

The three invited speakers on the program 'Laryngeal Physiology,' Dr. William Thornell, Dr. Hans von Leden, and Dr. Kurt Tschaissny, have been friends since their residency days at the Mayo Clinic.

Paul Ptacek, formerly Assistant Director of the Speech and Hearing Clinic, University of Minnesota, has accepted a joint appointment with the Cleveland Hearing and Speech Center and Western Reserve University as coordinator of professional education. His past experience in the counselling and guidance of college students, as well as related work in special camp programs for maladjusted students, will serve him well in his present position.

The Crippled Children's Society of Los Angeles has announced the appointment of Thomas B. Abbott, formerly senior staff clinician at the University of Florida, as Director of Speech Therapy.

Mack D. Steer, Clinic Director at Purdue University, Lafayette, Indiana, has been appointed Consultant to the Fort Wayne State School for the Mentally Retarded. His duties are concerned with administrative matters and the reorganization of the Speech and Hearing program at the Fort Wayne School.

The Gordon D. Hoople Hearing and Speech Center, Syracuse University, announces two major staff appointments: Jozef Zwislocki, Ph.D., as research associate professor; and Arthur House, Ph.D., as associate professor in Audiology and Speech Pathology.

The Department of Speech, including the Speech and Hearing Clinic, University of Minnesota, Duluth Branch, will move into new quarters in the Humanities Building sometime during the winter or spring quarter. Dr. Robert F. Pierce directs the activities of the Clinic.

Lee E. Travis has resigned from the staff of the University of Southern California to become Vice President in charge of Personnel for Gibraltar Savings and Loan. Reorganization of the Speech and Hearing Clinic into various specialized clinics has been effected by the new Director of Clinical Services, William Perkins. Victor Garwood is now serving as Director of Audiology and Research. Plans are currently being considered to have Dr. Travis teach an advanced course in psychotherapy for speech pathologists each semester. Dr. Garwood is on a year's sabbatical doing research on auditory thresholds of laboratory animals. As a post-doctoral research fellow, he has been assigned to the Deafness Research Laboratory, Children's Hospital Society of Los Angeles.

An internship sponsored by the National Foundation for Infantile Paralysis, under the aegis of Stanford University School for Medicine, has been awarded to Mary Will. Her work with post-polio and aphasic patients will be done at Fairmont Hospital in San Leandro.

Meetings Announced

An International Congress on the Educational Treatment of Deafness; Manchester, England, July 15-23, 1958; sponsored by University of Manchester, Ministry of Education, National College of Teachers of the Deaf, British Council, Alexander Graham Bell Association for the Deaf, Inc., U.S.A. Program: Ascertainment, assessment, treatment of deafness in pre-school children; provisions of education for children with impaired hearing through the work of medical services, audiology clinics, special schools and classes. Address: Dr. A. W. Ewing, Department of Education of the Deaf, University of Manchester, Manchester 13, England, for membership.

The Association for Student Teaching, American Association of Colleges for Teacher Education, The National Society of College Teachers of Education; Chicago, Illinois, February 21, 22, 1958; Conrad Hilton Hotel. Address: Alfred C. Moon, Iowa State Teachers College, Cedar Falls, Iowa.

The Association for Student Teaching; University of Puerto Rico, Puerto Rico,

August 7-13, 1958. Program: Workshop on Student Teaching; sightseeing tours on the Island. Address: Dr. Aida de Vergne, University of Puerto Rico.

International Council on Exceptional Children; Kansas City, Missouri, April 7-12, 1958; Muehlebach Hotel. Program: Investigation of all areas in Special Education, including the gifted child. Address: Harley Z. Wooden, 1201 16th Street, N.W., Washington 6, D. C.

Alexander Graham Bell Association for the Deaf; Pittsburgh, Pennsylvania, June 22-27, 1958; Hotel Webster. Program: Problems of the Deaf. Address: Miss Alice Dunlap, Executive Secretary, Washington, D.C.

Regional Conference on Mentally Retarded and Speech Handicapped Children; Hotel Sainte Claire, San Jose, California, March 15, 1958; Address: Dr. Ward Rasmus, Director, Speech and Hearing Clinic, San Jose State College, San Jose, California.

The 11th Congress of the International Association of Logopedics and Phoniatrics; London, England, August 17-22, 1959. Program: The Inheritance of Voice and Speech Disorders; Defects of Articulation, Physiology and Pathology of the Soft Palate. Address: Peggy Carter, 46 Canonbury Square, London, N. 1.

New York State Speech Association; Syracuse, New York, March 14, 15, 1958; Onondago Hotel. Address: J. E. McEvoy, School of Speech and Dramatic Art, Syracuse University, Syracuse, New York.

The American Association for Cleft Palate Rehabilitation; San Francisco, California, April 24-26, 1958; St. Francis Hotel. Address: Robert Ricketts, D.D.S., 15247 Sunset Boulevard, Pacific Palisades, California, for presentation of a scientific exhibit or table clinic; Samuel Pruzansky, D.D.S., Cleft Palate Center, University of Illinois, 1853 West Polk Street, Chicago 12, Illinois, for Short Course; Duane Spriesterbach, Ph.D., Department of Otolaryngology, University Hospitals, Iowa City, Iowa, for general information.

Southern Speech Association; Houston, Texas, April 1-5, 1958; Price Hotel.

National Society for Crippled Children and Adults; Dallas, Texas, November 16-20, 1958; Statler Hilton Hotel. Program: Important medical advances and latest therapy techniques in rehabilitation. Host: The Texas Society for Crippled Children.

Assistantships, Scholarships, Fellowships, Grants

Clinical Assistantships

University of Denver. Speech Clinic. Speech therapy with children and adults. $600 for academic year, 20 hours per week. Open to persons working toward advanced degree and having 200 clock hours of clinical practice. Address: Elwood Murray, Director of School of Speech, University of Denver, Denver, Colorado.

University of Denver. Speech Clinic. Audiological testing, lip reading, auditory training. $600 for academic year, 20 hours per week. Open to persons working toward advanced degree. Address: Elwood Murray, Director of School of Speech, University of Denver, Denver, Colorado.

Bowling Green State University. Speech and Hearing Clinic. $1000 to $1800 for academic year plus remission of tuition fees. Each candidate for Master's degree may take 12 credit hours per semester. Address: Donald C. Kleckner, Chairman, Department of Speech, Bowling Green State University, Bowling Green, Ohio.

The Ohio State University. Speech and Hearing Clinic. Clinical or Research. $750 to $1500 for nine months, 15 to 25 hours per week, starting June, September, January, March. Two-thirds to three-fourths graduate load. Address: W. Hayes Yeager, Department of Speech, The Ohio State University, Columbus 10, Ohio.

Purdue University. Speech and Hearing Clinic. $1700 for 10 months, $2040 for 12 months and remission of tuition fees, 20 hours per week. Starting September, February or summer. Also available are clinical assistantships, 10 hours per week. May enroll for 14 hours of graduate course work per semester. Address: M. D. Steer, Speech and Hearing Clinic, Purdue University, Lafayette, Indiana.

University of Southern California. Las Floristas Preschool Speech Clinic. Speech therapy with preschool children and parental counseling. $1500 for nine months, 20 hours per week. $750 for nine months, 10 hours per week. Address: William Perkins, Speech and Hearing Clinic, University of Southern California, Los Angeles 7, California.

Stanford University. Speech and Hearing Clinic. $600 to $900 for nine months, 6 to 10 hours per week. Open to persons with clinical experience. Address: Virgil Anderson, Division of Speech Pathology and Audiology, Stanford University, Stanford, California.

University of Southern California. Speech and Hearing Clinic. Supervision of clinical activities in various Clinic divisions. Up to $1500 for nine months, 20 hours per week. Possibility of additional remuneration for summer session. Address: William H. Perkins, Speech and Hearing Clinic, University of Southern California, Los Angeles 7, California.

Syracuse University. Gordon D. Hoople Hearing and Speech Center. $1500 to $2000 for nine months, 20 hours per week. Remission of tuition fees each semester. Individuals may take nine hours work. Address: Louis M. DiCarlo, Hearing and Speech Center, Syracuse University, Syracuse 10, New York.

University of Illinois. Speech Clinic; Hearing Center. Clinical supervision of student trainees. $1800 and remission of tuition fees for nine months, ten hours per week. Student must enroll for 12 hours of graduate work. Address: Karl Wallace, Department of Speech, University of Illinois, Urbana, Illinois.

Teaching Assistantships

Purdue University. Department of Speech. Instruction of two sections of Principles of Speech or serve as drill-master for several sections of remedial voice and articulation drill course, or serve as clinician in the Speech and Hearing Clinic; starting September, February or summer. $1700 for ten months, waiver of tuition fees, half-time. Student may enroll for ten hours of graduate courses per semester. Address: M. D. Steer, Speech and Hearing Clinic, Purdue University, Lafayette, Indiana.

Research Assistantships

Purdue University. Speech and Hearing Clinic. Research assistance on U. S. Office of Education project involving development and evaluation of clinical methods for mentally retarded. $1500 for academic year (ten months) or $1800 for calendar year; remission of tuition fees. Student may enroll for combination of full course load with research. Address: M. D. Steer, Speech and Hearing Clinic, Purdue University, Lafayette, Indiana.

University of Southern California. Las Floristas Preschool Speech Clinic. Research activities with speech of the preschool child. $1500 for nine months, twenty hours per week; or $750 for nine months, ten hours per week. Address: William H. Perkins, Speech and Hearing Clinic, University of Southern California, Los Angeles 7, California.

Internships

Stanford University. Speech and Hearing Clinic. Internship open to persons with previous clinical experience. $900 to $3000, depending on time spent on the job. Address: Virgil Anderson, Division of Speech Pathology and Audiology, Stanford University, Stanford, California.

Stanford University. Veterans Administration Audiology Clinic. Internship open to candidates for Master's degree or the Ph.D.; one year of clinical experience required. $2720 for 12 months, 20 hours per week. Address: Hayes Newby, Division of Speech Pathology and Audiology, Stanford University, Stanford, California.

University of Southern California. Speech and Hearing Clinic. Instruction and supervision of drill of students in voice improvement or in speech improvement for the foreign-born. $1500 for teaching eight units for nine months; or $570 for teaching three units for nine months. Address: William H. Perkins, Speech and Hearing Clinic, Uni-

versity of Southern California, Los Angeles 7, California.

Scholarships

The Ohio State University. In Audiology. Up to $1000 for academic year, starting June, September, January, or March. Student carries full graduate load. Address: W. Hayes Yeager, Department of Speech, The Ohio State University, Columbus, Ohio.

Stanford University. Speech and Hearing Clinic. $600-$750 for nine months. Open to graduate students in Speech Pathology and Audiology. Address: Virgil Anderson, Division of Speech Pathology and Audiology, Stanford University, Stanford, California.

Stanford University. Speech and Hearing Clinic. Offered by the Office of Vocational Rehabilitation as traineeships for graduate students in Speech Pathology and Audiology. $2400 to $2800 for nine months. Candidates must have completed academic requirements for ASHA basic certification in either speech or hearing. Address: Virgil Anderson, Division of Speech Pathology and Audiology, Stanford University, Stanford, California.

University of Illinois. Speech Clinic; Hearing Center. Tuition scholarships open to students working for advanced degree. Waiver of tuition; $310 per semester for residents; $350 per semester for non-residents. Address: Karl Wallace, Department of Speech, University of Illinois, Urbana, Illinois.

Fellowships

University of Denver. Speech Clinic. Assisting the Director of the Speech Clinic. $1200 for academic year, 20 hours per week. Address: Elwood Murray, Director, School of Speech, University of Denver, Denver, Colorado.

University of Denver. Speech and Hearing Clinic. Audiological testing, lip reading and auditory training. $1200 for academic year, 20 hours per week. Open to person finishing doctoral work. Address: Elwood Murray, Director, School of Speech, University of Denver, Denver, Colorado.

University of Denver. Speech and Hearing Clinic. Assisting the Director of the Clinic. $2000 for academic year, 20 hours per week. Open to person finishing his doctoral degree. Address: Elwood Murray, Director, School of Speech, University of Denver, Denver, Colorado.

The Ohio State University. In Audiology. Up to $1200 for academic year, starting June, September, January, or March. Student carries full graduate load. Address: W. Hayes Yeager, Department of Speech, The Ohio State University, Columbus, Ohio.

Vanderbilt University School of Medicine. The Bill Wilkerson Hearing and Speech Center. Programs leading to the Master of Science degree in speech correction, audiology, or the teaching of hearing impaired children. Monthly stipend of $100 to $130 for twelve months; tuition fee waived. Address: Forrest M. Hull, Director, The Bill Wilkerson Hearing and Speech Center, 2109 Garland Avenue, Nashville, Tennessee.

University of Illinois. Speech Clinic; Hearing Center. Open to promising candidates for Master's degree and Ph.D. Stipend of $1200 for academic year. The holder of a fellowship is a full-time student, performs no services, and is exempt from tuition and fees. To an Illinois resident, *total value* of a fellowship is $1500; to an out-of-state resident, the value is $1780. Address: Karl Wallace, Department of Speech, University of Illinois, Urbana, Illinois.

Kansas University Speech and Hearing Clinic; Kansas University Medical Center, Hearing and Speech Department; Crippled Children's Nursery School; and the Rehabilitation Institute: Starting September, 1958. Diagnostic and clinical duties: $1200 to $1800 for two semesters, half-time work. Candidates working on Master's degree allowed to take 10 credit hours per semester. Write to Dr. Richard Schiefelbusch, Speech and Hearing Clinic, Kansas University, Lawrence, Kansas.

Audiology. Kansas University Medical Center. Starting September, 1958. Diagnostic and clinical duties: $1200 for two semesters, half-time work. Allowed to take up to 10 credit hours per semester. Write

to Dr. June Miller, Educational Director, Hearing and Speech Department, Kansas University Medical Center, Kansas City, Kansas.

Kansas University Medical Center, Preschool for the Deaf and Kansas State School for the Deaf, Olathe, Kansas. Starting September, 1958. In addition grants of $300 to $700 per academic year are available for most students. Room, board, and laundry can be had in exchange for a minimal amount of supervision at the Kansas School for the Deaf. For details write to Dr. June Miller, Educational Director, Hearing and Speech Department, Kansas University Medical Center, Kansas City, Kansas.

Grants

Two research grants have been awarded by the United States Office of Education for investigation of the speech and language of the mentally retarded. San Francisco State College will study the effectiveness of various methods of therapy that will be suitable for these children under the direction of Albert W. Koch, formerly at Boston University and Robert H. Gottsleben, formerly at the Training School at Vineland. The research period will extend over a two-and-a-half year period. A similar study will be in progress at Purdue University under the direction of M. D. Steer and T. D. Hanley of the Speech and Hearing Clinic. The purpose of their research will be the evaluation and development of therapy techniques modeled after the autistic theory of language as discussed by O. H. Mowrer, Department of Psychology, University of Illinois.

The Office of Vocational Rehabilitation, Washington, D. C., has offered training grants in Speech and Hearing to the following institutions during the academic year 1957-1958: University of Pittsburgh, University of Wisconsin, State University of Iowa, Northwestern University.

Stanford University announces the continuance of an award offered by the National Office of Vocational Rehabilitation in the form of a teaching and training grant for qualified graduate students. Applications for traineeships beginning in the Spring quarter of 1958 and for the summer quarter of 1958 should be sent to Virgil Anderson, Director, Division of Speech Pathology and Audiology, Stanford University, Stanford, California.

Materials

A recording and script of a case study in therapeutic counseling are now available on tape as well as disc. The materials, entitled 'The Case of Jim,' cover the therapy of a speech-handicapped person over a two-year period. The recording and script have been prepared by the Educational Test Bureau, 2106 Pierce Avenue, Nashville, Tennessee.

Two new pamphlets concerned with industrial hearing conservation have been published by the Employers Mutual Insurance Company of Wausau, Wisconsin. 'Now Hear This' and 'Industrial Noise and Hearing Protection' tell how industry can protect the worker against the effects of noise.

The seventh translation of the Beltone Institute for Hearing Research can be obtained from the Circulation Manager, TBIHR, 2900 West 36th Street, Chicago 32, Illinois. The article translated is 'Our Determination of the Difference Limen for Intensity Modulation of Pure Tones, Its Validity and Its Topo-Diagnostic Efficiency' by E. Leischer.

'Hearing Aids for Deaf Children,' a reprint from the *Volta Review*, is being distributed by the Hearing Aid Division of Zenith Radio Corporation, Chicago, Illinois.

The Community Council of Greater New York has issued a manual to aid social and health services in the determination of reasonable fees. Interested persons may obtain a copy from the Council's Publication Department, 44 East 23rd Street, New York.

The first annual World-Wide Graduate Award Directory contains a listing of stipends and awards for graduate and postgraduate study in various fields all over the world. Copies may be ordered from the Advancement and Placement Institute, Box 99E, Greenpoint Station, Brooklyn 22, New York.

'Stuttering: Therapy in Action' is still available at $1.00 per copy. Address: Kenneth Johnson, ASHA National Office, 1001 Connecticut Ave. N.W., Washington, D. C.

The Advancement and Placement Institute, a non-commercial, professional and advisory service for the field of education, publicizes leading foreign positions in its monthly non-fee placement journal, *Crusade*. A special International Issue, $1 per copy, devoted to foreign positions for September, 1958, includes data about salaries, qualifications, teaching, administrative positions in Bolivia, Jamaica, Switzerland, New Zealand, Turkey, India, Venezuela. Of special interest are the Langauge Institute in Spain and the Interpreter's Language School 'at the site of an ancient castle in the picturesque mountains in Germany.' Address: The Institute, Box 99-F, Greenpoint Station, Brooklyn 22, New York.

Equipment

Two new devices for repeating sound recorded on tape have been announced. (1) The Audio Vendor is a continuous loop mechanism loaded with friction-free tape that plays 5 to 10 minutes. It can be obtained from Cousino, Inc., 2011 Ashland Avenue, Toledo 2, Ohio. (2) An LP Magazine Repeater, a recorder-playback which plays 28 to 55 minutes, is available from the Pentron Corporation, 777 South Tripp Avenue, Chicago 24, Illinois.

The Maico Company has developed a low distortion audiometer suitable for Aural Overload testing. Information may be obtained from the Maico Company, Inc., 21 North Third Street, Minneapolis 1, Minnesota.

A tactile communicator for the deaf called the 'Teletac' has been presented to the John Tracy Clinic by the Ramo-Woolridge Corporation. The 'speaker' consists of five piano-type keys which activate five finger tip size vibrators on the 'listener's' set.

Additional Announcements

The Catholic University of America will conduct a Workshop on Speech Therapy, June 13-25, 1958. Appearing on the program will be Ollie Backus, William T. Dailey, D. Robert Frisina, Emil Froeschels, Mamie Jones, Zelda Kosh, E. Paul Moore, Rev. Michael O'Brien, James C. Teegarden and Charles Van Riper. The subjects to be studied are: group therapy in speech correction, chewing method, stuttering, brain injury, esophageal speech, problems accompanying hearing loss and counseling in speech correction. Problems of the classroom teacher will be developed in a short course. Sister M. Cyprian Spradling and E. Milo Pritchett will direct the workshop, which offers two hours of graduate or undergraduate credit. Information may be secured from the Director of Workshops, The Catholic University of America, Washington 17, D. C.

A Workshop in Stuttering Therapy will be offered during the week of June 23-28, 1958, by the University of Iowa in conjunction with the Office of Vocational Rehabilitation. The enrollment will be limited to twenty-five. Dr. Wendell Johnson and other authorities on stuttering will serve as discussion leaders. The annual Speech Pathology and Audiology Conference, which will be attended by the Workshop group as well as all other interested persons, will be held on June 27 and 28. Enrollment for the Conference alone is not necessary. For further information, write to Mr. James N. Neelley, Department of Speech Pathology and Audiology, University of Iowa, Iowa City, Iowa.

Book Reviews

CHERRY, COLAN. *On Human Communications: A Review, Survey, and Criticism.* New York: John Wiley & Sons, Inc., 1957. Pp. 333. $6.75.

This is the introductory volume of a series "Studies in Communication" to be published over the next few years. This book is written for the general reader and covers the range of topics included under cybernetics and/or information (communication) theory especially as it relates to linguistics, phonetics, semantics and psychology. The material is presented in an orderly fashion but the area is so tremendously large, 367 references, that the specialist within any one field may feel his field of interest slighted. Unfortunately, the subject matter outside the particular interests of many of the specialist readers of this journal is not elementary reading. A reading acquaintance with mathematics, physics and probability theory is necessary to follow the chapters 'On Analysis of Signals, Especially Speech' and 'On the Statistical Theory of Communication.' It is not surprising, of course, that technical chapters require technical knowledge, but this book is not a panacea for those grounded in social sciences desiring a qualitative understanding of speech analysis and communication theory.

Exceptions to the orderly presentation and the relating of all subject matter to the mathematical theory of communication occur in the last chapter. However, the book attains its goal, of presenting an extract of related topics to communication theory, eminently well.

The review and survey mentioned in the sub-title are handled very well: the criticism is limited to the implication that Jakobson's distinctive features of phonemes are not the most appropriate for acoustical analysis purposes.

Despite the fact that speech specialists might feel their subject matter inadequately covered and that their related fields are too mathematical for easy reading, Cherry has done an excellent job of collecting between two covers the myriad of materials available in the field of communications and language. No one can write a book covering this wide a field that will adequately cover everything and yet read like a novel. It is well worth taking the time and effort involved to acquaint yourself with the concepts and ideas of your colleagues by reading this very valuable book.

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FRAMPTON, MERLE E. and GALL, ELENA D. (editors) *Special Education for the Exceptional, Volume II: The Physically Handicapped and Special Health Problems.* Boston: Porter Sargent Publisher, 1955. Pp. 677. $5.50.

In spite of its shortcomings in organization, a problem recognized by the editors, this volume is a fairly useful compilation of information about the blind, the deaf, the defective in speech, the orthopedically handicapped, the cardiopathic, and those with special health problems such as muscular dystrophy, tuberculosis, and Hansen's disease. The editors have assembled reprints and original materials that touch, sometimes very briefly, on the kinds of special education that may be provided for the physically handicapped.

Chapters III, IV, and V deal with the deaf, the hard of hearing, and the speech defective. They include sections written by Myklebust, Hardy, Ronnei, Irwin, Westlake, and others. Some of the sections contain bibliographic material; each chapter concludes with a list of agencies, periodicals, and bibliographies pertinent to the problem discussed. Unfortunately, some of the information about agencies is out of date and some is inaccurate. Unfortunately, also, the selection and classification of the books, pamphlets, and articles on speech defects may confuse the reader who is unfamiliar with the literature in this field.

The editors freely admit the lack of consistency in style, but they point out that

Book Reviews is edited by Ernest H. Henrikson, University of Minnesota.

they have 'consciously sacrificed this consistency for the greater value to the reader of the individual author's point of view and method of presentation.' The reader, understanding this reasoning, will find much of the book interesting and some of it valuable as reference material.

CHARLOTTE G. WELLS
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ASHBY, W. Ross. *An Introduction to Cybernetics*. New York: Wiley, 1956. Pp. 295. $6.50.

The author addresses his book primarily to workers in biological sciences who, because of insufficient training in mathematics, cannot appreciate, first hand, rigorous research and theory. Convinced that readers equipped with 'elementary mathematical knowledge' may be led to 'complete understanding' of the basis of the theory of cybernetics, he has endeavored to organize and present requisite materials for study. The book, which may be considered to be a companion volume to the author's *Design for a Brain*, repeats the theme that biological action is mechanistic and hence subject to laws of the real world. It builds from a presentation of simple mechanisms and methods of symbolization to a treatment of the laws of regulation and control, the domain of cybernetics.

The book has three parts. The first presents the idea of mechanisms with specific reference to the determinate machine. The machine with input and the black box are described after preparatory exposition of such fundamental concepts as parameter, transformation and transition, among many others. Feedback and stability are principal topics. In the second part, under the title 'Variety,' the role of constraint in the transmission of information is discussed, together with such topics as coding, channel capacity and Markov chains. (The author's contention that the reader, after mastering this part, 'will be able to proceed without difficulty to the study of Shannon's own work' is preposterous.) Regulation and control are the subjects of the third part. Here the application of information theory to the regulation of machines is developed. Nondeterminate regulation is compared to determinate regulation, and problems of error-controlled regulation and design of regulators are taken up. The speculative last sections are concluded with a raising of the tricky question of 'amplifying intelligence.'

The author's usual method of exposition is to describe the operation of systems explicitly in simple algebraic form or in tables in which "states" are represented by letters or numbers. Proof is often by example. An instance of the frequent appeal to intuition is the exercise in which the reader is asked to show why the transform of the difference between two variable is equal to the difference of their transforms. The answer is given in terms of prices of butter and sugar today and tomorrow. Today's difference tomorrow is held to be the same as tomorrow's price of butter less tomorrow's price of sugar.

Typical exercises are not of this sort. They are constructed for illustration rather than practice, utilizing simple numbers so that the answers, which are provided when possible, often clue the method of solution. They are added at the end of about a third of the book's formal subdivisions. Some have a humorous touch. There is, for example, the exercise where the reader, presented with a list of systems which include cooking and cosmology, is generously released from 'meticulous accuracy' when asked to name two states of the systems related as operand and transform with time as operator.

Because the development is highly personal with the author, the book is probably not suitable as a text or general reference. Materials are generally not introduced for their own sakes but as parts of the author's story. While the book is not intended as a chat, it often reads like one. This may be to the credit of the author, who may be thought of as essentially popularizing his subject. He more than simply popularizes, however, since he attempts to make the target reader realize what will or will not have to be learned if understanding of science is to be furthered. As an influence on careers, the book may well be timely reading for students for whom it is not too late to change course. Others will find that familiarization with the principles expounded will aid them in understanding technical literature and in putting problems of their own profession in forms meaningful to the technical expert.

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GETZ, STEVEN B. and LODGE, ELIZABETH. *The Mentally Ill Child*. Springfield: Charles C. Thomas Co., 1957. Pp. 79.

The authors of this little book on the mentally ill child have attempted the difficult task of clarifying to the lay public subject matter which is highly controversial to the professionals who work with psychotic children. It is not likely that parents of a mentally ill child will be helped in making a differential diagnosis or objectively studying the behavior of their sick child through reading a condensed description of the outstanding characteristics of mental illness in children. The task of helping parents to accept the diagnosis of mental illness in their child is difficult enough when this is attempted through several interviews in which the specific behavior of their child is discussed, and an attempt is made to answer their many questions.

In spite of this objection there are several sections of this book which parents will find useful, particularly the section dealing with the home care of the mentally ill child. The authors discuss several practical and useful ways of meeting the numerous problems a psychotic child creates in the home. This aspect of the problem could well be enlarged upon since many, and perhaps the biggest percentage, of the psychotic children will have to be cared for in their own homes or returned to their own homes after hospital or institutional therapy. We shall have to wait many years before residential treatment centers and hospital facilities are developed in most communities that will offer comprehensive treatment for mentally ill children. This therapy will, in the main, have to be financed by public moneys or private grants since few families can afford the very high cost of providing therapy for psychotic children.

The book contains a good description of the facilities which are needed in the community and which may take the burden of care from the mother during the day, or entirely for a period of time. Many states including Minnesota, are hard at work planning well-equipped and well-staffed public hospitals for mentally ill children. Recent research studies of the psychotic child, particularly in newer methods of therapy, have been responsible for the current interest in developing separate treatment institutions for psychotic children. Hopefully, the development of the new institutions will provide facilities for further much needed research in this field.

The authors are keenly aware of the emotional drain on the mother who exhausts her energy in caring for her overactive and often destructive psychotic child, keeping her home in order and finding time to meet the needs of the healthy other members of the family. She needs a great deal of help from the father in dealing with these problems and, in most instances, outside help.

I would like to emphasize what the author's statement about the valuable help parents of a psychotic child can get from public and private family and children's agencies in the community. Social workers are well acquainted with the problems psychotic children present to the family, and stand ready to provide much needed help.

This book will find a good audience among pediatricians and general practitioners who appreciate a less complex discussion of the mentally ill child. It is they who will be called on by the parents to deal with many physical and emotional problems the psychotic child presents to the family. They will look to the child psychiatrist or psychiatric clinic for children to first establish a diagnosis and plan or carry out intensive psychotherapy for children who are mentally ill.

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McAULIFFE, GERVAIS WARD. *Practical Otolaryngology*. New York: Blakiston Division of the McGraw-Hill Book Co., 1957. Pp. 320. $7.00

Practical Otolaryngology is one of a series of handbooks directed to the general practitioner of medicine.

As such, the common organic diseases of the ears, nose, and throat are discussed, but few references to hearing, voice, or speech are included. While diseases of the ear, for instance, take up over one-half the entire book, no reference is made to the field of audiology or to the surgical rehabilitation of the deaf.

An entire chapter of the book is devoted to the treatment of infected tonsils by a technique which is not generally accepted, but the larynx, voice, and speech are relegated to two pages.

The applied anatomy of the ears is well illustrated with line drawings, and there are good sections on dizziness, otalgia, cough, and nasal bleeding.

While this book may appeal to the general practitioner of medicine, it has but

little value for the teacher or student of hearing, voice, or speech disorders.

HANS VON LEDEN

Chicago, Illinois

WEST, ROBERT, ANSBERRY, MERLE and CARR, ANNA. *The Rehabilitation of Speech*. New York: Harper & Brothers, Publishers, 1957. Pp. 688. $7.50.

This text has two major divisions. Book one, by the senior author, deals with pathologies of speech and rationales of rehabilitation; Book Two, by Ansberry and Carr, is concerned with remedial processes. In addition, there is a glossary of seventy-six pages, and five appendices containing additional professional materials.

Book One contains eleven chapters dealing with the neurophysiological mechanism of speech production; with dysphonia, dysarthria, aphasia, dyslalia and anacusis, classified as primary disorders; with dysphemia and dyslogia, classified as secondary disorders; and with stuttering, classified as both. There is also an excellent chapter on mongolism, and one on case study and evaluation.

This is a scholarly book, and is invested with clinical wisdom as well. The presentation of such concepts as: everyone but the expert knows what stuttering is; psychotherapy in the hands of the amateur is a systematized sciolism; the X factor, or personal potential, which functions in a manner inexplicable to science; and the diagnostic aids presented in Chapter IX, give the reader a sense of sharing a rich and mature professional experience. For most serious readers the book will have two defects. It is authoritarian; probably no reader will share all the author's biases. The terminology is sometimes labored, and sometimes serves to confuse rather than clarify issues, although at the same time the mastery of etymology and general philological competence compel admiration.

Book Two presents a sound and sensible approach to therapy. It contains a wealth of materials, techniques and suggestions for the clinician, which are presented in sufficient detail to constitute a valuable resource for the beginner. The methodology is informed by clinical insight so that the student is offered not only a repertoire of techniques, but also an understanding of the purposes which underlie them.

The book deserves a place in a professional library, with other outstanding texts in the field.

HILDRED SCHUELL

Minneapolis Veterans Administration Hospital

President's Message

Jon Eisenson

The year 1958 will see the fruition of several changes approved during the past two years. Our new Executive Office, as of January 1, is 1001 Connecticut Avenue, N.W., Washington 6, D. C. Overseeing our affairs in the new office will be our newly appointed Executive Secretary, Dr. Kenneth O. Johnson, who relieves our stalwart Secretary-Treasurer, Dr. George Kopp.

The establishment of the Office of Executive Secretary and the renting of office space were made possible by a generous grant from the United States Office of Vocational Rehabilitation. A grant of $20,000 was made for the period of September 1, 1957, through August 31, 1958. Subject to congressional appropriation, additional funds were approved for the three years ending August 31, 1961.

The first issue of our second major publication, the *Journal of Speech and Hearing Research*, will appear in March under the editorship of Dorothy Sherman. The present *Journal of Speech and Hearing Disorders*, edited by Mary Huber, will be continued. The JSHD will include official announcements and explanations of the affairs of the Association. Its articles will be devoted, for the most part, to contributions about clinical and rehabilitory problems in our field. The new journal will, as the title indicates, be concerned with the publication of research.

The Committee on Association Planning, in order to provide for the professional needs of the members of the Association, last year sent out a questionnaire to the membership. The responses were generous in number and in their attitude toward present ASHA practices. A majority of the 1,533 respondents indicated general satisfaction with the present publication, the convention program, and certification standards. Almost as many persons were satisfied with the process of securing certification as were those not satisfied (602 satisfied compared with 630 not satisfied and with 301 who were neutral on this point). In general, except for certification procedures, our members seemed to approve of present ASHA procedures.

This general state of well being should not, however, be taken as an indication that we ought to stand still as an Association. Our members also gave us their thinking on possible changes and innovations in ASHA's functions, activities, and services for the future. The Planning Committee learned that a strong majority of the respondents considered it important to be better informed

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about the work of the Council and the Committees of the Association. They considered it important also to have more opportunity for the membership to express opinion and affect decisions and to have information made available to them about fellowships, assistantships, and research funds. In addition, our members urge us to do whatever we can as an Association to disseminate news about our profession and to facilitate an interchange of research ideas and data.

The Planning Committee also learned that our members were strongly concerned with a need to upgrade professional training programs throughout the country. A very large majority of the respondents were interested in having the ASHA work aggressively for certification standards by state and local systems, by related professions, and by employers of speech and hearing therapists in general. Most of the respondents thought it important to encourage the formation of state associations of speech and hearing therapists and to work toward eventual state certification for the licensing of therapists.

The concern of the membership with services to the public was clearly indicated by the evaluations of the respondents. Most considered it urgent or strongly desirable to publicize the standards of training for speech and hearing therapists and to prepare lists by states of reliable sources for diagnosis and therapy for persons with speech or hearing problems. Most also were interested in working out preventive and educative measures to improve the ethical practices of speech and hearing therapists.

The numerical increase in our Association—we had 4064 Members and 867 Associates as of October 31, 1957—has been accompanied by a healthy professional growth. Without being unduly self-conscious we are evaluating ourselves, our functions, and objectives, as well as our obligations to our clients whether they be pupils in the grade schools, students in high school or college, or clients in clinics, or those of private practitioners.

Agrammatism In Aphasia

H. Goodglass

J. Mayer

The present paper is based upon an experiment designed to investigate the linguistic nature of agrammatism in aphasia. The experiment was also designed to throw light upon the relationship of agrammatism to word-finding difficulty, and upon the association of agrammatism to specific syndromes in aphasia.

Disturbances in the grammatical organization of aphasics' speech were described and classified shortly after the turn of the present century. Yet it is notable that no aphasia test published during the last twenty years suggests a procedure for evaluating deficits of the syntactic forms in speech. Grewel (*3*) recently observed that for many years linguistics has had little or no place in the interpretation of aphasic phenomena. Since disturbances of grammar or syntax can be defined and measured only in linguistic terms, it is apparent why this important phase of aphasia is little better understood today than it was half a century ago.

Roman Jakobson (5), one of the few linguists who has dealt in this area, recently proposed the concept of two processes at work in normal language. These two processes are independently susceptible to the effects of aphasia. One process–similarity–brings to the act of communication the capacity for substituting verbal symbols for individual concepts. Aphasic word-finding difficulties, as in amnesic or nominal aphasia, represent the effects of what Jakobson terms 'similarity disorder.' The second process–contiguity–permits the incorporation of information into the way that words and word groups are placed in relation to each other. Agrammatism and telegraphic speech represent the effects of 'contiguity disorder.' While Jakobson's presentation has some important defects, it justifies a thorough and systematic investigation of the relationship between the various symptoms of defective syntax which may represent a disturbance in a single basic process. The present study is one of a number of exploratory investigations which must be carried out if the various manifestations of normal and disordered *contiguity* are to be identified, or if the concept is to be demonstrated as unproductive.

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Linguistic Phenomena and the Classification of Aphasia

By *linguistic phenomena* we refer to those aphasic manifestations which

must be defined in grammatical terms[1] and which, therefore, are relevant only to languages having common syntactic features. For instance, the loss of ability to discriminate nominative, dative and accusative forms of a noun is a linguistic phenomenon which is relevant to Latin, German and Russian, but not to English. The ability to discriminate between definite and indefinite articles is relevant to English but not to Latin or Russian, which do not ordinarily use the article. Linguistic phenomena in aphasia stand in contrast to those symptoms which can be defined in terms of motor, perceptual, memory, or other physiological or psychological principles. For instance, the loss of recall of propositional, as compared to exclamatory, speech is a psychologically defined language phenomenon and presumably applies to aphasics of any nationality.

Authorities such as von Monakow, Bonhoeffer, Kleist, Isserlin, Pick, Goldstein, Weisenburg and McBride, and Ombredane agree that characteristically different grammatical disturbances appear in the speech of motor and of sensory aphasics. Citing Weisenburg and McBride (13), 'One of the most interesting expressive changes often found with the cortical form of motor aphasia is the abbreviated sentence and grammatical structure described by the German authors as "agrammatism" and by the French as "telegram style." The agrammatic patient retains the key words of his sentence but tends to omit articles, relational words, and inflectional endings, so that his speech is impoverished and choppy.

Kleist applied the term 'paragrammatism' to the defect found in sensory aphasia, where the sentence retains its general structure but grammatical forms may be incorrectly chosen, may contaminate each other, words may be misplaced, inflections confused, and sentences left hanging. This type of speech is marked by a greater flow of words than in agrammatism. Pick (*12*) recognized these distinct patterns, but referred to them as the frontal (associated with motor aphasia) and temporal (associated with sensory aphasia types of expressive agrammatism. Isserlin reaffirms this distinction, asserting that telegraphic style is not a regular part of sensory aphasia, but that on the other hand paragrammatism is associated with sensory aphasia. Wepman (*14*) and his co-workers recognize this dichotomy and describe a patient who has 'expressive aphasia with agrammatism' and who 'uses virtually no modifying or syntactical words, but is able to communicate fairly well by stating in substantially correct order a few highly informative words.' Head's (*4*) category of 'syntactic aphasia' appears to be based on a combination of paragrammatic and agrammatic features, although Head's description of the rapid but inaccurate flow of words appears to emphasize the paragrammatic aspects.

The symptom of name-finding difficulty can be recognized in almost every case of aphasic speech. When it occurs without other aspects of speech disturbance, it creates so striking a clinical picture that it is accorded the special name of *amnesic aphasia* or *anomia*. To the extent that nouns are affected more than other parts of speech, anomia may be considered as a linguistic phenomenon. However, many contemporary authorities consider the difficulty in

[1]Jakobson has dealt with linguistic phenomena at the phonemic level in aphasia, but these shall not concern us here.

anomia to be that of evoking words as designators and they feel that any part of speech may suffer, although the function of designating most often falls to the lot of nouns.

Previous Explanations of Linguistic Phenomena

Almost all the approaches to this problem have been along psychological lines. A fundamental psychological principal which reappears many times is that the aphasic is most apt to fail in communication which requires a volitional act of symbolic formulation, but that he performs most readily in an automatized or otherwise highly structured speech situation. This principle is applied by Head (*4*), and more particularly by Goldstein (*2*) to account for the loss of nouns by the 'nominal' or 'amnesic aphasic.' For Goldstein, the essential nature of amnesic aphasia is that the patient has lost the ability to conceive of the relation between the spoken word and the object to which it refers, and between words of the same conceptual class. However, Goldstein recognizes that there is a phenomenon of word finding difficulty apart from this, and he does not hold that all difficulties in word naming represent a concretization of behavior. There is evidence, from cases cited by Kuenburg (*6*) and Lotmar (7) that concreteness of behavior and name-finding difficulty have no causal relationship, and that anomia is always to be understood within the sphere of language in the narrow sense. Jakobson (*5*) in expounding his concept of the *similarity disorder* in aphasia, unfortunately indentifies it with Goldstein's controversial amnesic aphasia and with the general intellectual capacity to relate a symbol conceptually with a referent or with another symbol. Wepman (*14*), in recognizing a dichotomy between a word-finding process and a syntax-forming process in speech, also tends to apply the formula 'volitional vs. automatized' to help define, if not to explain, the two processes.

Isserlin, as cited by Goldstein (*2*), offers an entirely psychological interpretation of the agrammatic or telegraphic style of speech of motor aphasics. He suggests that because of the laboriousness of speech they have an urgent need to deal directly with the key words, to the detriment of conventional sentence patterns. Pick and Goldstein also support this view, but they regard it as a contributing factor only.

Pick's analysis of the problem of agrammatism identifies successive stages in the development of a spoken sentence and relates the agrammatic phenomena to a breakdown at a specific stage. According to Ombredane's (*10*) summary, Pick recognized two pre-verbal stages. The first consists of a global awareness of the general purpose of the sentence and the second is a schematization, still pre-verbal, of the specific mental content which is to be dealt with. Next comes the linguistic phase, also divided into two stages. The first of these is the activation of a sentence schema, and finally the choice of words, which slip into pre-determined slots in the sentence pattern.

Ombredane points out that the transition from the pre-verbal schema to the sentence schema is a difficult one to explain. He has recourse to Paul's analysis of the components of the sentence schema. Paul indicates that the sentence schema itself is made up of both verbal and non-verbal elements. The non-verbal aspects, such

as the melodic pattern and the rhythm are probably more primitive, more closely linked to the subjective attitude of the speaker, and serve as the transition to the verbal aspects. The verbal aspects involve the positioning of words and the use of relational words, auxiliaries, and inflectional endings. If, indeed, the melodic pattern precedes the verbal portion of the schema, it is easy to see that it must also restrict and sometimes determine what the verbal part will be in the way that a melody restricts the choice of words that can fit it. Monrad-Krohn (*8*) has also dealt extensively with disturbances of speech melody, or 'dysprosody,' pointing out that rhythm, pitch variation and stress may be differentially injured in speech with different neurological lesions. He observes that an aphasic may lose those melodic variations which emphasize the syntactic relations in a sentence, while those which indicate emotional emphasis may be exaggerated.

Pick does not intend that every spoken sentence should be considered as passing through his four stages in succession. He recognizes that some sentences are so automatized as to be recalled as a whole, without intervening steps. He also stresses that agrammatism is far more apparent in a highly inflected language like German than in a language such as English in which the telegram style is closer to normal syntax.

Experimental Investigations of Linguistic Symptoms in Aphasia

A review of the literature reveals only two articles in which a systematic study of linguistic distortions in aphasia was proposed. Panse, Kandler and Leischner (*11*) studied the speech of a patient who exhibited paragrammatism, word-finding difficulty, and paraphasia. This study placed little specific focus on the sentence-forming process. Inspection of their protocols reveals that their patient had that speech pattern which Pick associated with sensory aphasia and which, with Kleist, we call paragrammatism.

Wepman, Bock, Jones, and Van Pelt (*14*) undertook to test the notion of a specific loss of nouns in a case of anomia. They counted the number and variety of nouns, pronouns, verbs, modifiers, and other parts of speech found in a sample of the patient's verbal production. These figures were compared to a sample obtained from a normal control subject and to an 'anomic model' based on expected frequencies of these parts of speech in written language. The results of this study showed that the number of different nouns used by the patient was reduced much more sharply than was the case with other parts of speech. In all parts of speech, there was a marked overdependence on the most commonly used words of English and an under use of the loss frequently used words. The authors minimize the significance of the decrease in the number of nouns and state that the essential feature of the anomic-like speech pattern is the recourse to words and word-combinations which are commonly used, overlearned, and virtually automatized. These are words with low information value. They suggest that the statistical characteristics of the speech of aphasics with agrammatism will be the reverse, since agrammatics tend to use few words, each of high information carrying value.

From the viewpoint of the present writers, Wepman *et al.* have provided strong confirmation of the descriptive

validity of the label anomia because of the striking constriction in the variety of nouns in the patient's speech. However, we doubt that their statistical data justify the further inferences made about the underlying processes which distinguish the anomic speech pattern from the agrammatic. There is evidence that individuals with impoverished speech, including aphasics of all types, tend to use a restricted vocabulary in which the most common words of the language are overused and the less frequent words rarely occur. Thus, while we agree with Wepman's qualitative observation that his patient's speech pattern includes many automatized word sequences, we doubt that the rate of occurrence of *individual* high frequency words corresponds directly to the frequency of occurrence of habituated *word sequences*.

Objectives of the Present Study

In adopting the general framework of Jakobson's concept, the present writers postulate a definite language process, contiguity, which is responsible for the utilization of syntactic forms in speech. This process may be impaired or may remain unimpaired independently of articulatory difficulties, word-finding difficulties, or auditory comprehension difficulties in aphasia. We recognize, however, that in nature the impairment or non-impairment of this capacity probably tends to characterize certain aphasic syndromes; *e.g.*, it is least impaired in amnesic or nominal aphasia and in sensory aphasia but most impaired in motor aphasia.

The principal objectives of the present study are to identify certain syntactical operations which distinguish agrammatic from non-agrammatic aphasic speech and to determine which of these operations are the most discriminating. Two secondary objectives are:

1. To determine whether, as Jakobson indicates, contiguity disorder is inversely related to similarity, or wordfinding, disorder.
2. To test the validity of the belief that agrammatism tends to cluster with poor articulation, good auditory comprehension, and few paraphasic errors, while non-agrammatism tends to be associated with the other end of each of the foregoing continua.

Subjects

An agrammatic group and a non-agrammatic group of five aphasic patients each were selected by the senior author from the population of the aphasia unit at Boston Veterans Administration Hospital. The criteria for selection as agrammatic were: (1) most of a patient's utterances (other than stereotyped expressions) showed a loss of fluency in connecting words into phrases; (2) loss of inflectional forms and syntactical words; and (3) loss of melody and rhythm within even short phrases. Selection for the non-agrammatic group was based on the patients' retention of normal melody, rhythm, and syntactical usage for a variety of original phrases. Neither group consisted entirely of 'pure' or extreme representatives of either agrammatic or non-agrammatic speech. An effort was made, in the initial selection, to exclude patients who had too little or too severe aphasic symptomatology.

In order to attribute differences between the groups to the type, rather than to the degree of aphasic deficit, it was considered necessary to keep

them equivalent in the severity of their speech handicap. Two criteria for comparing the groups were used: ratings on a seven point aphasia severity scale, and a memory span score for word repetition ability.

The ten patients were rated independently on severity of aphasia or 'ability to communicate,' by a judge who knew them all well, but who was naive as to the purpose of the rating. On the seven point scale the mean of the agrammatic group was 4.4 and the mean of the non-agrammatic group was 5.0. The ratings were ranked and subjected to the Mann Whitney u test. The p value of .47 was well within chance expectancy, indicating no difference between the two groups with regard to severity of aphasia.

The memory span score consisted of the number of words correctly repeated in a test requiring the reproduction of sets of one, two, three, and four words. The highest possible score was 22. The mean of the agrammatic group was 16.8 and the mean of the non-agrammatic group was 16.2. The individual scores were ranked and subjected to the Mann Whitney u test which yielded a p value of 1.00. It was assumed, therefore, that no differences existed between the two groups in memory span for words.

Materials and Procedure

The main part of the experiment consisted of the individual administration of a series of phrases and sentences of three levels of increasing length and complexity to each patient. The patients were required to repeat, following simultaneous oral and visual presentation, each of the phrases and sentences. The use of a repetition task placed similar demands on both groups of patients, since they were equated for verbal memory span and severity of aphasia.

Level 1 consisted of simple phrases. Level 2 consisted of declarative sentences, both simple and compound, while Level 3 consisted of simple and complex sentences in interrogative, passive, conditional and other transformations of the basic subject-verb-object model. All repetitions were recorded verbatim.

Following the phrase and word repetition task a synonym-finding task was administered to each patient. They were required to supply a word 'that means something like or can be used in place of' each of the stimulus words. There were ten test words as follows:

1. Bread
2. Cup
3. Rat
4. Jacket
5. Avenue
6. Spoon
7. Liquor
8. Quilt
9. Painter
10. Silk

Any response which was a coordinate, subordinate, synonym, or superordinate of the test word was accepted. Half credit was given for correct solution with a delay of over 10 seconds.

This completed the testing procedure. Following this, two further scores for each patient were obtained. The first was an auditory comprehension score taken from a word-discrimination test which all patients had previously received during their regular aphasia testing. The score used was from the earliest aphasia examination on file for each patient. The sec-

ond score was based on a seven point rating scale for articulation. Two judges, neither of whom knew how the patients had been classified for this experiment, were asked to rate all ten patients on 'difficulty in articulation.' Each patient's score was the mean rating of the two judges.[2]

Analysis of Data

For purposes of scoring success and failure, the test phrases and sentences were divided into 94 main or subordinate clauses and phrases, each of which could be scored as a unit as correct, omitted, or incorrectly reproduced. In determining the categories for classifying errors, we were guided by the following characteristics of contiguity disorder, listed by Jakobson (5):

1. Reduction in the variety of sentences.

2. Loss of the syntactic rules which organize words into a higher unit, causing the degeneration of sentences into a 'word heap' (H. Jackson's term).

3. Ties of grammatical coordination or subordination are dissolved.

4. Words endowed with purely grammatical functions, like conjunctions, prepositions, pronouns, articles, and inflectional endings (hereafter referred to as grammatical morphemes) are lost.

On the basis of these and of our preliminary inspection of errors, the following categories were established:

1. Omission of grammatical morphemes other than verb endings; *e.g.*, 'open window' for 'open the window.'

2. Addition or substitution of grammatical morphemes other than verb endings; *e.g.*, 'with the brother' for 'with my brother,' and 'a bigger house' for 'a big house.'

3. Change in verb form. a. Simplification. Loss of inflectional ending or of the auxiliary word in a compound verb, or changing to the present indicative from another form of the verb; *e.g.*, 'he come' for 'he will come.' b. Other (non-simplified) changes in verb form; *e.g.*, 'Has he seen his brother?' for 'Did he see his brother?'

4. Irrelevant opening. Attempting to begin a sentence with opening words other than those of the test sentence; *e.g.*, 'What is . . . see his brother?' for 'Did he see his brother?'

5. Loss of inverted interrogative word-sequence. 'When he will see his brother?' for 'When will he see his brother?'; "A man come' for 'Did a man come?'

6. Loss of coordinating or subordinating structure: substituting an 'and'–connection or completely omitting the words or construction which indicate a conditional, causal, or other qualifying relationship between parts of a sentence; *e.g.*, 'Darker sky and rain come faster down' for 'The darker the sky became, the more the rain came down'; 'Eat your meat an' you cut it' for 'Eat your meat when you cut it.'

7. Adequate paraphrasing. Grammatically correct rephrasing of the test phrase; *e.g.*, 'Why did he go and buy the car?' for 'Why did he have to buy the car?'

8. Stereotypy. Scored for each error type which occurs three or more times in a patient's protocol.

9. Paraphasic word errors, inadvertent substitution of wrong words or neologistic distortions. (While this does not represent a linguistic error,

[2]The authors are indebted to Dr. S. Tartakoff, Chief of the Aphasia Unit, and Mr. Robert Sparks, Senior Language Therapist, for their cooperation in rating the patients.

TABLE 1. Number of grammatical errors made by patients classified as agrammatic and non-agrammatic.

Subject no.	*Omission of grammatical morphemes*	*Add. or subs. of grammatical morphemes*	*Verb form change simplified*	*Verb form change non-simplified*	*Irrelevant opening*	*Loss of inverted interrogative*	*Loss of co-ord. or sub-ord. construction*	*Adequate paraphras.*	*Stereotyped errors*	*Paraphasic errors*	*Unclassified errors*	*Total errors*
						Agrammatic						
1	2	3	1	0	2	0	2	0	0	2	2	14
2	7	15	7	1	4	5	4	3	6	5	2	53
3	4	26	18	5	8	4	7	4	26	6	6	88
4	12	22	28	2	7	5	7	0	29	5	11	99
5	29	20	15	2	14	5	5	0	57	12	26	128
Mean	10.8	17.2	13.8	2.0	7.0	3.8	5.0	1.4	23.6	6.0	9.4	76.4
						Non-agrammatic						
1	1	12	2	1	0	0	1	5	3	0	0	22
2	2	7	6	1	0	0	0	0	0	6	3	25
3	6	5	2	4	0	0	0	6	0	8	4	35
4	3	8	4	3	0	1	0	0	6	26	8	53
5	6	7	14	4	4	1	4	11	9	11	4	66
Mean	3.6	7.8	5.6	2.6	0.8	0.4	1.0	4.4	3.6	10.2	3.8	40.2
P level	.09*	.16**	.11*	.70**	.04**	.04*	.02*	.15*	.09*			.13*

*One-tailed test.
**Two-tailed test.

it was tabulated in order to investigate the clustering of aphasic symptoms.)

10. Unclassified errors. Paraphrasing which did not correspond to the meaning of the test sentence and which was too far from the original to be scored under the categories of grammatical errors.

11. Total number of errors.

Results

Agrammatic vs. Non-agrammatic Speech

It was predicted that the agrammatic group would have the greater number of total errors, and specifically, that they would dominate in those error categories which reflect omissions and simplifications of syntactical structures and loss of variety in syntactic forms. One tailed tests of significance were therefore applied to differences between the groups in the categories: omission of grammatical morphemes, simplified verb form changes, loss of inverted interrogative word sequence, loss of coordinating or subordinating structures, stereotypy of errors, and total errors.

The opposite prediction, i.e., more instances by the non-agrammatic group, was made for the one error category, adequate paraphrasing, which required spontaneous utilization of grammatical forms just as complex as those of the test sentences. No directional predictions were made for the categories: 'other' verb form change, irrelevant opening, addition or substitution of grammatical morphemes.

In all cases the Mann Whitney u test was used to test for differences. The scores were converted into ranks and one- or two-tailed tests of significance as described by Mosteller and Bush (9) were carried out.

Table I shows the analysis of the different types of errors for the agrammatic and the non-agrammatic groups. Inspection of Table I reveals large variances within the small sample, reducing the possibility of obtaining statistically significant differences between the groups.

The differences obtained are all in the expected direction. The following findings are supported to a significant degree beyond the .05 significance level:

1. The agrammatic group more frequently made abortive starts with irrelevant opening words than the other group.

2. The agrammatic group more frequently lost the inverted interrogative word sequence.

3. The agrammatic group more frequently lost the coordinating or subordinating construction in the sentence.

The following findings show a tendency towards significance (p levels between .05 and .15):

1. The agrammatic group omits more grammatical morphemes than does the non-agrammatic group. ($p = .09$).

2. The agrammatic group more frequently changes to a simplified verb form. ($p = .11$).

3. The non-agrammatic group more frequently paraphrases in an adequate manner. ($p = .15$).

4. The agrammatic group has more stereotyped repetitions of the same errors than does the other group. ($p = .09$).

5. The agrammatic group has a mean of 76.4 total grammatical errors to 40.2 for the control group. ($p = .13$).

It is observed that the three most highly discriminating error types all appear to reflect the tendency of the agrammatic patient to revert to one of

TABLE 2. Word-finding ability in agrammatics and non-agrammatics.

Word-finding score		*Word-finding score*		
Agrammatic		Non-agrammatic		
1)	19	1)	6	
2)	6	2)	13	
3)	14	3)	4	
4)	18	4)	6	
5)	11	5)	16	
M = 13.6		M = 9.0		p = .11*

*A one-tailed Mann Whitney u test, predicting an inverse relationship between word-finding ability and agrammatism was used to test for differences between groups.

a small number of simple syntactic models.

Relation of Word-finding Difficulty to Agrammatism

Jakobson's formulation of the contiguity defect implies that it is the negative of the similarity defect. For example, he states, 'the less a word depends grammatically on the context, the *stronger is its tenacity in the speech* of aphasics with a contiguity disorder and the sooner it is dropped by patients with a similarity disorder. Thus, the "kernel subject word" is the first to fall out of the sentence in cases of similarity disorder and, conversely, it is the least destructible in the opposite type of aphasia' (italics ours). Thus, we would expect word selection to be most impaired in the non-agrammatics and least impaired in the agrammatics. Confirmation of this expectation can be explained, however, by the argument that the agrammatics owe their characteristic speech pattern to the very fact that they *have* recovered a fair degree of word-finding ability for 'key words,' but that this recovery is not a *result* of their contiguity disorder. Negative results would require definite modification of Jakobson's formulation.

Table II shows the relationship of word-finding ability, as measured by the word-finding test previously described, to agrammatism vs. non-agrammatism. Inspection of the table shows a tendency ($p = .11$) for word-finding difficulty to be associated with non-agrammatism.

Relation of Agrammatism to the Motor Aphasic and Sensory Aphasic Syndromes

According to the classical descriptions of motor and sensory aphasias, the following relationships between the elements of the syndromes are to be expected:

Symptom	*Motor Aphasia*	*Sensory Aphasia*
Agrammatic speech	Severe	Mild
Articulation	Impaired	Good
Auditory comprehension	Good	Poor
Paraphasic word errors	Infrequent	Frequent

In order to test the clustering of these symptoms, all ten patients were ranked with respect to each of the following four variables:

Agrammatism: ranked on the basis of total errors on the phrase and sentence completion test. The total error score is used as the most adequate single measure of agrammatism because the authors hypothesized, before the data were collected and analyzed, that the agrammatic patients would have many more errors, of all types, than the non-agrammatic patients. This measure was also least affected by the subsequent analysis of the different types of errors.

Articulation: ranked on the basis of the ratings of the two judges.

Auditory comprehension: ranked on the basis of the aforementioned word discrimination test.

Paraphasia: ranked on the basis of the individual's per cent of total er-

rors which were paraphasic word-substitution errors, on the phrase and sentence repetition test.

A coefficient of concordance, as described by Edwards (*1*), was used to test the degree of agreement among the four different types of rankings. The resulting coefficient, Wc = .522, is significant at the .01 level of confidence. This indicates that a ranking of severity of agrammatism tends to correspond to rankings of the other three most prominent criteria of motor and sensory aphasia, respectively; namely, severe agrammatism goes along with poor articulation, relatively good auditory comprehension, and few paraphasic word errors.

Discussion

In this preliminary investigation we have attempted to identify more exactly than has been possible up to now what constitutes the loss of ability to grammaticize spoken messages in aphasia. On evaluating our experimental data, it appears that the most discriminating categories of errors are those based on molar analysis of sentence patterns. Twenty-three per cent of the errors of agrammatic patients—(1) irrelevant openings, (2) loss of subordination or coordination and (3) loss of interrogative—indicate a tendency of the agrammatic to fall back on a small repertory of most habituded and simple sentence types and to ignore those grammatical structures or words which represent more complex syntactic relationships. Only four per cent of the errors of the non-agrammatic group fall into these categories. Errors in syntactic usage of individual words, chiefly grammatical morphemes, prove less reliable as a basis for discriminating between the two groups than does a more molar analysis.

The clearest indication of this investigation is, then, that further studies of this problem should concentrate on the nature of syntactic schemata, or models. It is necessary to identify the hierarchy of difficulty of different grammatical structures for aphasics and to determine how this hierarchy corresponds to frequency of usage in normal conversation and to the order of appearance of these models in the speech of children.

Our study confirms the observation that aphasics of both categories have difficulty with grammatical morphemes. However, there is indirect evidence that these difficulties arise in different ways in the two groups. First, among the agrammatic patients there is a greater tendency toward simplification of verb forms; second, there is a greater tendency to repeat the same erroneous patterns; and finally, there exists their inability to reproduce the more complex or uncommon syntactical patterns. The following theoretical model of the grammatizing process is suggested to account for these findings. We conceive the most primitive form of the sentence schema as consisting of a sequence of word positions, placed according to syntactic relationships, with a superimposed melody characteristic of the particular schema; *e.g.*, a falling inflection for the assertive aspect of a simple declarative sentence, and a rising inflection for the inquiring aspect of questions. The word sequence is a direct analogue of the 'logical' organization of the concepts composing the message. Thus the logic of English speaking people dictates the sequence 'subject'–'acting on'–'object' in a simple declarative sentence. The speaker may fail to evoke one or more words for key

positions in the schema, without necessarily losing the rest of the pattern. In other words, we consider word-finding as parallel and interlocking with the grammatizing process, but not as a step in the hierarchy.

At the first stage in the sentence development the small syntactical words and inflectional endings may not be differentiated from each other. Thus, the evocation of the sentence model opens up a range of meanings within which fine distinctions can be made; *e.g.*, such distinctions as between 'chair,' 'the chair,' 'a chair,' 'his chair.' We agree with Pick's analysis, which insists that these finer modulations of grammatical structure are learned by repetition to a highly automatized degree. The awareness of the conceptual value of individual grammatical morphemes comes late in life and is relatively inoperative in normal speech. The same may be said of the 'grammatical rules' governing their use. Thus, in our view, the selection of the basic sentence schema is the psychological underpinning of the proper use of grammatical morphemes. Our data suggest that the agrammatic group fails at the first stage in the grammatizing process. They have lost the ability to find the melodic-syntactic models which correspond to their concepts. Being deficient at this level, their choice of grammatical words is limited to those which belong to the few sentence models which they know, or represents an artificial recourse to knowledge of the 'rules' about making sentences. They do not have the benefit of automatized 'feel for sentences' to aid them in the selection of the grammatical words, except within their restricted repertory of sentence schemata.

The non-agrammatic patient is best defined as having considerable facility in evoking a variety of sentence models. He may then, also have a fairly well retained 'feel' for the finer and automatized grammatical modulations which the grammatical morphemes represent. Most of his grammatical errors will be confined to the imperfect functioning of this higher level of discrimination.

Our position differs from that of Wepman *et al.* (*14*) in the smaller role which we assign to automatization in the manipulation of syntactical patterns. Wepman treats grammatizing as essentially automatic, in contrast to the volitional word-finding process. We suggest that automatization plays a role only after the finding of an appropriate sentence schema.

Our incidental investigation of the role of word finding in agrammatism lends some support to Jakobson's notion of a negative relationship between agrammatic and anomic elements in aphasia. We suggest, however, that this relationship may be built into the definition of the agrammatic patient; *i.e.*, that it is probably an artifact of the selection of the groups, rather than a characteristic of the underlying linguistic and psychological process.

It may be an accident of sampling that the difficulties of our ten subjects in articulation, syntax, comprehension, and paraphasia fit the clustering characteristic of the classical motor and sensory aphasia. In view of the consistency of descriptions of these syndromes in neurological literature, the authors are reluctant to consider this accidental. Rather, we would suggest that the clear-cut presence of agrammatic or telegraphic speech in a patient with moderate aphasia is a fairly stable and reliable indicator of the 'typical motor aphasia' and that a clearly non-agrammatic speech pattern in a moderately aphasic

person is a reliable indicator of a partially recovered 'sensory aphasia'—or, more rarely, of amnesic aphasia (anomia). The results, in addition to our theoretical interpretation of the data serve to justify Jakobson's choice of 'contiguity disorder' and 'similarity disorder' as a significant basis for a dichotomy of types of aphasia.

Summary

Five agrammatic and five non-agrammatic aphasics were administered a phrase and sentence repetition test and a word-substitution test. In addition, measures of articulation difficulties, auditory comprehension difficulties, and of over-all severity of aphasia were obtained.

Results showed: (1) the agrammatic group tended to revert to one of a small number of simple syntactic models; (2) the agrammatic group made more errors of omission and substitution of grammatical morphemes; (3) the agrammatic group showed more stereotyped repetitions of the same errors; (4) the agrammatic group made more total errors; (5) there is a tendency for the agrammatic group to have less word-finding difficulty; and (6) there is a significant relationship between the presence of agrammatism and the classical cortical motor aphasia syndrome on the one hand, and between the absence of agrammatism and the cortical sensory aphasia syndrome on the other hand.

These results were interpreted in terms of a theoretical model of the syntactic process and are felt to be generally supportive of Jakobson's similarity-contiguity dichotomy of aphasic types.

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Vocal Rehabilitation In Benign Lesions Of The Vocal Cords

Friedrich S. Brodnitz

The goal of vocal rehabilitation is the restoration of a usable and, if possible, normal voice in all kinds of conditions which impair vocal function. While in the treatment of malignancies the preservation of life is the paramount consideration and vocal function a secondary consideration, in the benign lesions of the cords, which are the subject of this paper, vocal rehabilitation is the goal of any form of therapy. To the patient, the yardstick of successful treatment is not the smooth appearance of his cords but the degree of clarity of the voice and his ability to use it under the conditions of daily life and in his work.

For practical purposes we can group the benign lesions of the vocal cords according to the role which functional factors play in the etiology of these lesions. Recently, Baker (1) has suggested use of the term 'chronic non-specific laryngitis' for all lesions of the vocal cords which are produced by misuse or abuse of the voice. Into this group belong: chronic hoarseness in children, screamer's nodules, chronic non-infectious laryngitis, nodules in adults, polypoid thickening of the cords, polyps, contact ulcers. In benign lesions which have no functional basis, such as papillomas, cysts, leukoplakias, granulomas of the vocal cords, and web of the vocal cords, vocal therapy facilitates the restoration of a satisfactory voice. In the voice disturbances of the chronic nonspecific laryngitis group recurrences can be prevented only if the underlying cause—vocal dysfunction—can be eliminated by vocal rehabilitation.

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Mechanics of Voice Disturbances

In benign lesions of the vocal cords that have a functional basis, the whole vocal apparatus has to be considered as a unit of function. The location of the lesion on the vocal cords—the most vulnerable part of the vocal mechanism—does not mean that faulty vocal cord function alone is to be blamed. The behavior of the breathing mechanism and of the resonating cavities contributes to the stress to which the vocal cords are exposed.

In the vast majority of functional voice disorders, general hyperfunction or hyperkinesis precedes the appearance of tissue alteration. Hypofunctional weakness of the voice—Flatau's phonasthenia (*6*) or Jackson's myasthenia laryngitis (*11*)—is only the end product of prolonged hyperfunctional use of the voice, except in

voice disorders with neurological or purely psychogenic basis.

Some of the many factors that combine to produce the pattern of vocal hyperfunction are: abnormalities in the mutational change of the voice during adolescence, constricted use of the voice in all forms of public speaking, abuse of the voice in work that involves shouting or speaking with excessive loudness, faulty voice production in acting, or singing without proper training or in a range that exceeds the natural limits.

In addition to the mechanical factors, psychological and emotional dynamics influence vocal function. The tensions of modern life, the competitive stress of many occupations and professions and a wide range of personal emotional imbalances combine in producing hyperfunctional voice patterns. Of the general medical disorders that influence vocal behavior, the hormonal and metabolic imbalances are particularly important. It is for all these reasons that the over-all planning of vocal rehabilitation should be in the hands of the physician who is able to evaluate all the technical, medical and psychological factors of a given case.

In benign lesions of the cords without functional basis, the disturbance of motor-kinesthetic sensations and the mechanical impairment of vocal cord closure and vibration produce a secondary hyperfunctional voice pattern that continues even after removal of the lesion.

Conservative versus Surgical Treatment

Surgical removal is necessary in the majority of benign lesions of the cords. But in small lesions of relatively recent standing, such as small nodules, thickening of the cords, small contact ulcers without pronounced granulation, vocal therapy alone may effect a disappearance of tissue changes together with the restoration of a normal voice.

On the other hand, larger and solidified nodules, well-defined polyps, general polypoid thickenings of the cords, and contact ulcers with extensive granulation require surgical intervention, to be followed by vocal rehabilitation. Without such vocal retraining recurrences are frequent since the underlying cause of the lesion continues to be effective (*4, 9*).

Lesions that have no functional basis such as papillomas, hemangiomas, granulomas and larger leukoplakias have to be excised. But in these cases, too, vocal rehabilitation should be included in the plan of treatment.

Post-Operative Management

Vocal rehabilitation should start before the operation. A first recording of the voice should be done, to be followed by recordings at the beginning of the post-operative voice training and during its progress. The patient should be informed in detail of his chances for recovery. He should be told how much time it will take before he can resume full social and professional use of his voice. The need for post-operative vocal rehabilitation should be explained to him.

After the operation a period of complete voice rest should be observed. Voice rest has no therapeutic value whatsoever. Its only function is to permit an undisturbed healing of the surgical lesion. Prolonged voice rest imposes a severe emotional strain on the patient and weakens his vocal muscles.

For this reason the post-operative voice rest should be as brief as possible. In pedunculated polyps, a few days rest will be sufficient; in nodules, two weeks rest should be the maximum; in sessile tumors, in larger granulomas or after stripping of polypoid cords, longer periods of rest may be necessary. The voice rest should be complete. The patient should be especially cautioned against whispering. Voiceless whispering is hardly ever recommended and 'stage whisper' is rather strenuous.

Methods and Techniques of Vocal Rehabilitation

As in all rehabilitational work, vocal therapy means more than just a series of exercises. A total approach, directed at all physical and psychological complications of the disorder, is necessary to achieve a satisfactory result. The plan for vocal rehabilitation must include all possible means of influencing the variety of factors that form the basis of a given voice disturbance.

Psychological Approach. The patient with a benign lesion of the vocal cords is always the victim of emotional stress. Whether or not he has to go through the upsetting experience of a laryngeal operation, he is always frightened by the impairment or the threatened loss of his voice.

The quality of the voice is often disappointing when the patient emerges from the period of post-operative silence. Left to his own devices the patient will try to overcome this handicap by force, thus establishing a new pattern of hyperfunction; or he will be so afraid of using his voice that he does not find the way back to normal vocal function. He has to be guided through this trying period with reassurance and a regime that gradually increases the vocal load.

When emotional problems play a major part in the etiology of the vocal dysfunction that produced the cord lesion, the patient is even more in need of sympathetic understanding. A quiet hour spent in discussing the problems of the patient will help much to remove anxieties and restore confident vocal function.

Drugs. Medication may be necessary to produce a favorable emotional atmosphere and relaxation of physical tensions. In emotionally upset patients, tranquilizing drugs, judiciously employed, are helpful in creating a calm and confident mood. When imbalances of the autonomic nervous system play a part in creating the tissue-irritating pattern of vocal hyperfunction—as seems to be the case in some contact ulcers—inhibiting drug combinations like Bellergal are valuable. In metabolic deficiencies hormonal treatment is indicated. The corticosteroids have their place in the treatment of allergic conditions or when post-operative tissue reactions are slow in disappearing.

Physical Therapy. The use of physical agents has been unjustly neglected in vocal rehabilitation although these have been recognized for fifty years as valuable therapeutic tools. A few methods may be mentioned briefly. Gutzmann (*8*) introduced harmonic vibration, a form of massage adjusted to the frequency of vocal cord vibration. It has a stimulating and, at the same time, relaxing effect. In hypofunctional voices, frequently observed after laryngeal operations, the use of a weak faradic current during

phonation, as described by Flatau (*6*) and Luchsinger (*12*), stimulates the production of firm tones and facilitates accuracy of pitch. The author has used quite frequently sinusoidal currents, applied through electrodes on both sides of the larynx. In hyperfunctional voices a sub-liminal sinusoidal current has a relaxing influence, while in hypofunctional voices a stronger sinusoidal current stimulates muscular action.

Voice Practice. As MacKenzie (*13*) has pointed out, in good speaking and singing 'the Minimum is always the Optimum.' All forms of voice therapy aim to restore this economical balance between minimum expenditure of muscular energy and optimum production of sound.

The effect of any form of physiologically sound vocal practice goes far beyond the immediate mechanical help it gives the patient. The patient with vocal pathology becomes, almost invariably, a voice hypochondriac, particularly after an operation. By going through the routines of voice practice and repeating this procedure consistently, the thoughts of the patient are channeled from the anxious preoccupation with his vocal handicap into the conscious handling of his voice.

Vocal exercises have to be planned with an understanding of the basic facts of voice production. Of the three parts of the human instrument, the activator (breathing mechanism), the vibrator (vocal cords) and the resonator (supra-glottic airspaces), only the first and the third are subject to conscious control. The tension and vibration of the cords cannot be controlled by conscious action. In addition, the vocal mechanism constitutes a coupled acoustic system in which each part influences and acts on the others. Any improvement of resonator and activator control will, automatically, improve vocal cord function, including the adjustment of pitch to a natural level. Vennard's (*17*) statement, originally coined for the teaching of singing, holds true for voice therapy too: 'There is good evidence that when we are learning the shaping of the cavities above the larynx we are training the vocal cords unconsciously at the same time.'

In hyperfunctional voice disturbances that lead to benign tissue changes, almost invariably excessive tension and constriction of the throat and tongue muscles create a kind of acoustic bottleneck. It imposes an additional burden on the cords. The use of chewing movements with motion of the tongue, as introduced by Froeschels (7) is a very valuable tool in overcoming excessive tensions in the throat, tongue and soft palate. The method has been used in vocal rehabilitation by Beebe (*3*), Moolenaar-Bijl (*14*), Orthmann (*15*), Woodman and Kastein (*18*), and Brodnitz and Froeschels (*5*).

As one of the by-products of this over-all muscular adjustment, the very pernicious harsh attack of sounds by the use of the glottal stroke will be eliminated. The hitting-together of the arytenoid cartilages by the glottal stroke is an important factor in the formation of contact ulcers as described by Jackson (*10*). Peacher and Holinger (*16*) and Baker (*2*) have stressed the importance of vocal training in this condition. Special attention should be paid to the practicing of a soft and yet firm attack of the sound at the beginning of phonation.

Deficiencies of breath control, if not corrected through the improvement of resonator control, have to

be dealt with separately. Excessive air pressure, waste of air in phonation, pronounced reliance on one part of the breathing mechanism (most frequently the chest) and rigidity or flabbiness of the abdominal muscles have to be corrected. Contrary to popular assumption, abdominal breathing is not controlled by the diaphragm, which is more or less passive in exhalation and cannot be controlled consciously, but by the muscles of the abdominal wall. Sedentary habits and lack of exercise lead to a neglect of abdominal function in breathing which requires correction.

Altogether, it should be kept in mind that vocal production is a complex, yet unified function. Putting too much emphasis on isolated exercising of one of the components may destroy this functional unity. The ultimate goal of vocal therapy is not to do certain exercises well, but to enable the patient to speak or sing freely without paying much attention to details of the production of his voice.

Special Considerations of the Professional Use of the Voice

In patients who use the speaking and/or the singing voice professionally, vocal rehabilitation has the additional goal of restoring the voice for these highly specialized tasks. A careful study of their vocal habits and techniques will yield valuable clues to the vocal faults that caused the appearance of vocal cord lesions.

Singers, actors, ministers, teachers, lecturers and lawyers have their special technical and psychological problems. The need for guidance increases with the degree of specialized use of the voice in the work of the patient. The therapist has to have a good understanding of the working conditions, of the techniques and of the emotional problems involved in the practice of these professions. The best way of acquiring this knowledge, which is never taught in classrooms and not to be found in textbooks, is through frequent contact with patients who work in these professions. By discussing their professional and personal problems with them, one soon acquires a better insight into the work they do and one becomes more adept in helping these patients to vocational rehabilitation.

When nodules of the cords are present, the singer needs the help of an experienced singing teacher for vocal rehabilitation. The most frequent causes of the formation of nodules in singers are: attempts to sing above the natural limits of the voice (baritones who try to become tenors, mezzo-sopranos who sing as sopranos), enforced production of the voice with hyperfunctional constriction and singing of highly dramatic parts by singers with lyric voices. Whether conservatively or surgically treated, a complete retraining of the techniques of singing and of the voice mechanism is necessary. At best, it is a slow process, and the prognosis is uncertain.

If the patient is a professional user of the speaking voice, the vocal rehabilitation has to include training in the use of the voice under the specialized condition of his work when speaking before large audiences and in large halls. Correct use of the microphone and telephone, the achievement of special vocal effects by skillful use of resonance, flexibility of pitch and expression are some of the techniques that have to be stressed. The therapist

who is willing to acquire the necessary experience in this kind of work can render invaluable help to the laryngologist who handles patients with vocal cord lesions.

The patient who uses his voice professionally should never be left to his own devices after an operation on the vocal cords, but should be guided through carefully graded voice practice to the resumption of a full voice load under the conditions of his work.

The patient has to be impressed with the need for prolonged attention to a careful and conscious use of his voice, even after he reaches the stage of greater ease of voice production. One has to make sure that no backsliding occurs into the old faulty use of the voice which, sooner or later, would lead to a recurrence.

Summary

The goal of vocal rehabilitation is the restoration of a usable and, if possible, normal voice. In benign lesions of the vocal cords which are caused by abuse or misuse of the voice, vocal rehabilitation attacks the underlying cause of the voice disturbance and thereby prevents recurrences. In purely organic lesions vocal therapy assists in improving vocal function.

Vocal rehabilitation requires a total approach of which vocal exercises form only a part. It utilizes all possibilities of influencing vocal behavior: consideration and clarification of the psychological and personality problems involved in any voice disturbance, drug and physical therapy, vocal practice and technical vocal training. Conservative versus surgical treatment, post-operative management, methods of therapy and the special problems of the professional use of the voice are essential considerations.

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The Pup-Show: A Simple, Inexpensive Modification Of The Peep-Show

David S. Green

The purpose of this paper is to describe a modification of the peep-show technique that is both simple and inexpensive. Anyone who has tested the hearing of children will probably acknowledge that accurate audiometrics on very young children are of great importance and that conventional pure tone audiometry attempted with children between the ages of two and six often produces unreliable results. The ultimate success of early speech and language development is dependent upon the selection of appropriate training procedures; this, in turn, is dependent upon an accurate estimate of the child's hearing acuity.

In recognition of the limitations of conventional audiometry, auxiliary testing techniques have been developed. Of these, the Dix and Hallpike Peep-Show (2) is probably the best known. An audiometer and a motivational device, in this case a special doll house, comprise the essential materials for this test. The doll house has a push button switch which, if pressed while a tone is being presented, will cause an interesting picture to be illuminated in the interior of the doll house. Since the illuminating switch is wired in series with the switch of the audiometer and since both switches must be closed to activate the circuit, the illuminating switch only functions when the tone is on. In this test, the child is conditioned to illuminate the picture in the doll house when a tone is heard and, conversely, to make no attempt to do so when a tone is not heard. After the child learns this pattern, it becomes possible to obtain his threshold for pure tones simply by decreasing the intensity of the test tone to the point where the child no longer responds.

Modifications of the Peep-Show using a variety of motivational devices have been reported in the literature. Denmark (1) uses a moving object, a roundabout; Guilford and Haug (3) developed a device called a Pediacoumeter which utilizes jack-in-the-boxes; and Wishart (4) uses movies. Each modification is similar to the others in that it is based on the principle that the accuracy of obtaining pure tone thresholds of children is enhanced by increased motivation. The differences between modifications stem from the fact that each employs a motivational device which is unique with respect to cost, complexity, and availability.

The Pup-Show: Instrumentation and Procedure

The description to follow will encompass only the specific audiometer and motivational device currently in use at the Hearing and Speech Center of the Jefferson Medical College Hospital in Philadelphia. However, this information will also apply to any pure tone audiometer and to other battery operated toys. In view of the many battery operated toys on the market, a variety of presentations such as a Cat-Show, Bear-Show, *etc.*, are possible.

The Pup-Show circuit (Figure 1.) requires the modification of an Audivox 7B audiometer. Figure 1 (a) shows the unmodified T.I. (tone interrupter) switch; Figure 1(b) indicates the modified switching circuit; and Figure 1(c) schematically

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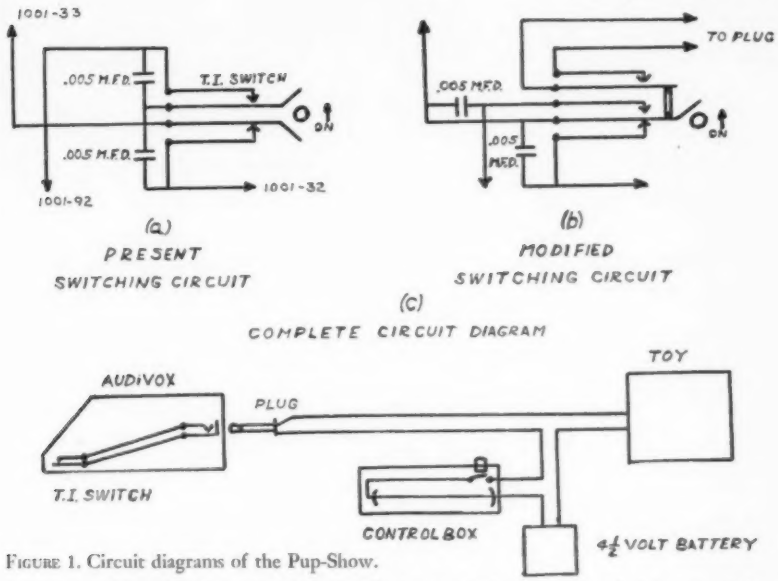

FIGURE 1. Circuit diagrams of the Pup-Show.

represents the audiometer in circuit with the toy. The function of the control box is to provide a housing for the push button switch operated by the patient. In addition to the audiometer, the following parts are used: 1. 'Bobo' remote control, battery operated walking dog. Cragston Corp., 136 Fifth Ave., New York 11, N. Y. Retail cost: $3.98. 2. Carter #L-215 non-locking lever switch. Cost: $2.65. 3. Carter #J-1 standard two connection phone jack. Cost: $.60. 4. Carter #P-24 type 'B' standard two connection phone plug. Cost: $.60. 5. Burgess F3 Radio 'A' battery, four and one-half volts. Cost: $.70. Total retail cost:—$8.53. The audiometer interrupter switch is replaced with one having an additional set of normally open contacts. The extra set of contacts is then wired in series with the dog and its battery so that the animal cannot be activated by its own switch unless the audiometer switch is also closed. A single four and one-half volt battery is used in place of the two, one and one-half volt batteries which come with the dog. This serves to prevent the dog's motor from stalling at inopportune moments. When both switches are closed at the same time, a cycle of movement is initiated in the dog which consists of six walking steps, a pause, and four high pitched barks. The cycle of walking and barking is repeated until the circuit is broken either by the child releasing the button switch or by the tester interrupting the tone. An ordinary phone plug is installed in the rear of the Audivox so that the animal may be disconnected when not in use.

Having described the instrumentation, it may be of value to insert a brief description of its use. To begin the test, the child, the audiometer, the dog, and the tester are positioned as in Figure 2. The child's fingers are placed near, but not touching, the button switch which is wired to the toy dog. Instructions are pantomimed or spoken, depending upon the language facility of the child, and then earphones are placed on his head. When he is ready, a tone calculated to be well above threshold is presented and the child is helped to manipulate the button in order to activate the dog. This is repeated several times or until the individual being tested learns that pressing the button will cause the dog to move only while a tone is

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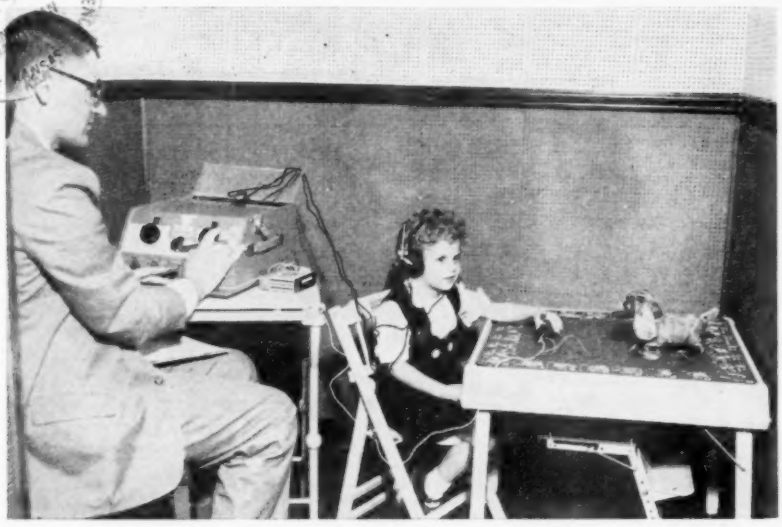

FIGURE 2. Photographic illustration of the Pup-Show in clinical use.

being presented. After the child has become conditioned, the tester proceeds with both air and bone conduction tests as in conventional audiometry. If interest in the test wanes, a candy bribe may be used. The candy bit is placed about one foot in front of the dog and the individual being tested is encouraged to walk the dog toward it. After walking the dog the prescribed distance, the child is rewarded with the piece of candy. The tester may hasten the child's reward by presenting sustained tones until the goal is reached.

Summary

In this paper, a modification of the peep-show technique has been described. Although the Pup-Show makes use of a well-established technique of clinical audiometry, its simplicity, interest, and lack of expense may encourage wider use of this method. Prospective users of the Pup-Show idea may be interested in the following characteristics of this procedure:

1. Complete monaural and binaural air and bone conduction tests may be obtained by a single tester.
2. All of the necessary parts, with the exception of the audiometer, may be purchased for approximately $8.53.
3. The apparatus attached to the audiometer is compact and portable, and may be unplugged and stored when not in use.

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